

## Session VI

# Crossing, Carrying and Carting

*The Federal Railroad Association's proposed "quiet zone rules" create rail safety issues that are impacting more and more communities. Find out how some states are responding. Innovative Regulation of Motor Carriers: Increasing program funding and putting state commissions out on the forefront of consumer protection. Important Lessons: Railroad deregulation and the failing infrastructure in this industry.*

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## PHOTO ENFORCEMENT AT HIGHWAY-RAIL GRADE CROSSINGS IN ILLINOIS: A CASE STUDY

Stephen C. Laffey\*

### Introduction

Use of photo enforcement in the U.S.—primarily in toll collection, freeway-operations management and red-light enforcement—is growing, though it is doing so slowly.<sup>1</sup> Video enforcement at highway-rail grade crossings is also growing with six states (Arkansas, California, Illinois, Iowa, North Carolina, and Texas) currently authorizing its use at highway-rail grade crossings.<sup>2</sup>

Experience at red-light-running sites has indicated a reduction of crashes of approximately 40% once cameras are introduced. One analyst has stated that

Red-light cameras provide the certainty of enforcement, 24 hours a day, seven days a week. This has changed the way drivers behave with regard to red-light running, and now we know the behavior change is affecting the bottom line, which is crash likelihood. With the well-publicized use of photo enforcement, communities can substantially reduce the number of crashes and injuries that occur at busy intersections.<sup>3</sup>

In Illinois, Public Act 89-454, passed in 1996, required the Illinois Commerce Commission (Commission) to conduct a two-year pilot program to test the effectiveness of automated photo enforcement of traffic laws to detect and deter grade crossing violations.<sup>4</sup> The General Assembly required the test, which was conducted in DuPage County, to be conducted in

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<sup>1</sup> See "Modernizing Traffic Law Enforcement Through Automation: U.S. Lags Behind," *Insurance Institute for Highway Safety Status Report*, 37(2) (May 2, 2002).

<sup>2</sup> Anya Carroll and Judith Warren, "The use of photo enforcement at highway-rail grade crossings in the U.S." presented at the Transportation Research Board Annual Conference 2002, Washington, D.C.: January 2002.

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<sup>3</sup> Richard Retting, quoted in "Red Light Cameras Yield Big Reductions in Crashes and Injuries," *Insurance Institute for Highway Safety Status Report*, 36(4) (Apr. 6, 2001): 1-2 at 2.

<sup>4</sup> Public Act 92-0245, passed in August 2001, changed the duration of the pilot programs so that they will run for five years at each site beginning with the initiation of enforcement activities. See footnote 8, below.

cooperation with Metra, the Commuter Rail Service Board of the Regional Transportation Authority (RTA) of northeastern Illinois and local law enforcement agencies. Three locations were initially selected based upon a collision frequency analysis conducted by the Railroad Safety Section of the Commission's Transportation Division. A fourth site; Fairview Avenue in the Village of Downers Grove was added in 2002. The three original sites are:

- Irving Park Road in the City of Wood Dale;
- River Road in the City of Naperville; and,
- Sunset Avenue in Winfield Township.

This paper provides a summary of operations at these three sites through December 2001.<sup>5</sup>

The three locations tested photo enforcement as the means of providing automated enforcement, though each location tested a slightly different system. Irving Park Road used a

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<sup>5</sup> Additional information concerning the development of the first three sites is available in Transportation Division Working Paper 2001-01, published in May 2001 and available at the ICC Web site [www.icc.state.il.us](http://www.icc.state.il.us).

system from ACS State and Local Solutions (ACS, formerly Lockheed Martin IMS). River Road used a system from Science Applications International Corporation (SAIC). Sunset Avenue used a system from Nestor Traffic Systems.

The systems apply essentially the same process: a camera records apparent violations and specialized software automatically reviews frames of film to recognize violations. Once a violation has been recognized, the cooperating police department uses software to determine which violations should receive a citation. Citations are then generated automatically by custom software and sent to the registered vehicle owner.

Illinois Vehicle Code Section 11-1201.1(a) requires that a photo enforcement system perform the following functions:

- Obtain a clear image or photograph of the vehicle,
- Obtain a clear image or photograph of the driver of the vehicle,

- Obtain a clear image or photograph of the vehicle registration plate, and
- Record the time, date and location of the violation.

In addition, railroad crossings equipped with automatic enforcement systems must have signs posted indicating that the grade crossing is under surveillance, that citations will be issued, and the amount of the fine. If the criteria identified above have been met, local law enforcement agencies may issue a uniform traffic citation accompanied with a written document explaining the alleged violator's rights and obligations and how the alleged violator can elect to proceed either by paying the fine or by challenging the issuance of the uniform traffic citation.

Implementation of photo enforcement is relatively straightforward. Once a train has activated the grade crossing warning device, the cameras become active and will record images of vehicles entering the crossing after the gates have begun to descend. When an image has been recorded, it is sent, processed, and reviewed at a central location to determine whether a violation

has occurred.<sup>6</sup> The Naperville and Wood Dale police departments allow a delay of five seconds after the flashing lights have activated before issuing a citation.

In order to issue a citation, the vehicle must be registered to a non-corporate owner who resides in Illinois. The driver of the vehicle is the person whom the citation is intended to reach, however since only the registered owner of the vehicle is public knowledge the citation is addressed to the registered owner. If the registered owner was not the driver when the violation occurred, the registered owner simply has to return the citation or appear in court and indicate that he or she was not the driver and the citation will be dismissed. However, the registered owner is required to indicate who was driving the vehicle at the time, if known.

### **Irving Park Road**

The first installation to come on-line was fully activated on Dec. 8, 1999 at Irving Park Road, a divided four-lane

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<sup>6</sup> The review can be accomplished manually or by applying computer software to automatically recognize when a violation occurs. Once a violation has been identified, further review is necessary to verify that the requirements for issuing a citation have been met.

state highway. The grade crossing, located on Metra's Milwaukee West Line, has approximately 75 trains per day of which 58 are Metra commuter trains and has an average annual daily traffic (AADT) count of 32,000 vehicles. The installation uses a system from ACS that employs traditional "wet" 35-millimeter film, which is retrieved from the cameras on a regular basis and developed by ACS technicians. After the film has been developed, the images are digitized and reviewed automatically by ACS staff, who forward all clear violations to the Wood Dale Police Department for final review. The Department then issues a citation to the registered owner of the vehicle photographed.

Figure 1 provides a general overview of the Irving Park Road site. Figure 2 provides an illustration of the camera installations in use at Irving Park Road. This installation is unique in that only the westbound lanes are under surveillance. Eastbound lanes are not monitored, since they are effectively controlled by a four-way signalized intersection 362 feet to the west.

### Irving Park Road Operations in 1999 and 2000

Figure 3 summarizes the number of violations and citations issued between Dec. 8, 1999, and Oct. 21, 2000.<sup>7</sup>

In January 2000, the first full month of operation at this site, 274 violations were recorded. In September 2000, the last full month the site was in operation, 145 violations were recorded. This represents a decline of 47% in the number of violations per month. The Federal Railroad Administration's (FRA) proposed rule requiring horn sounding at all public at-grade crossings requires that photo enforcement installations maintain a 49%, or greater, reduction in the occurrence of violations from the baseline violation rate in order to maintain a quiet zone. A strict interpretation of the effectiveness of the Irving Park Road installation in deterring violations would mean that this site does not meet the effectiveness threshold FRA may require if the final rule requiring train horns is adopted as published.

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<sup>7</sup> Note that the number of violations and citations for December 1999 and October 2000 are not for the complete month.



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

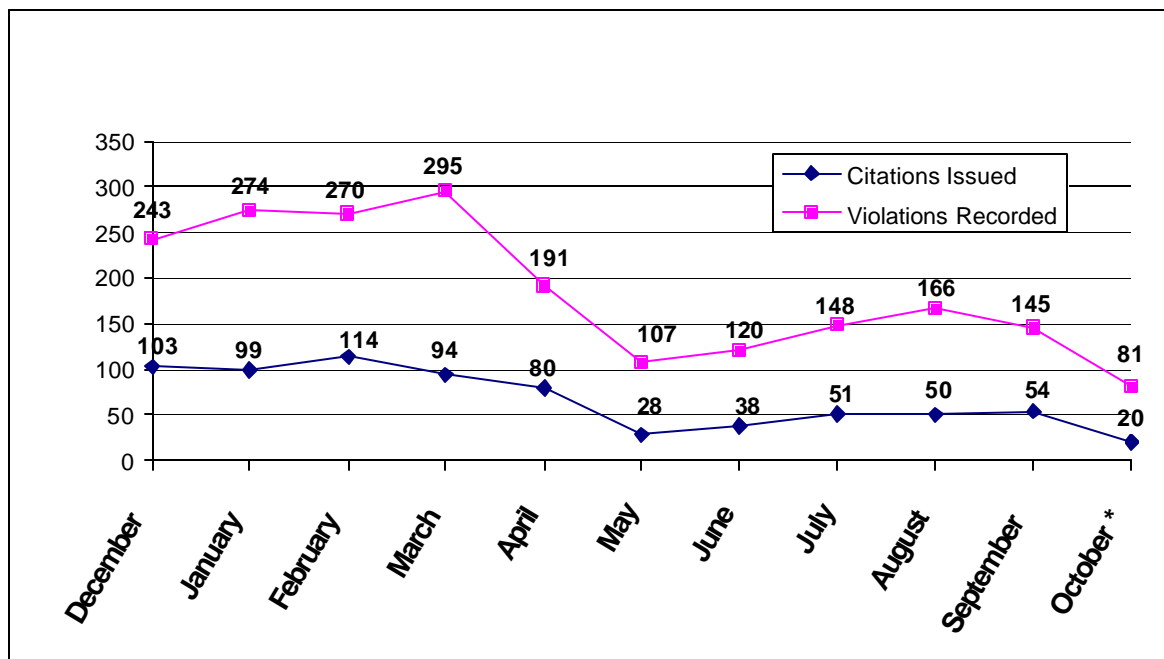
**Fig. 1.** Irving Park Road in Wood Dale, Illinois looking east



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 2.** The Irving Park Road photo system





Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 3.** Violations and citations at Irving Park Road  
December 1999 – October 2000

### Reliability During 2000

During 2000, the system was very reliable. ACS and the Wood Dale Police Department reported no mechanical failures. However, due to a few film jams in one or both cameras, there was a cumulative downtime of approximately nine days, providing an overall availability level of 97% between December 1999 and December 2000. There was only one documented occurrence of a gate malfunction during this period.

### Procedural Setback

On Oct. 18, 2000 enforcement at the Irving Park Road site experienced a procedural setback when Associate Judge Brian R. McKillip of the Eighteenth Judicial Circuit, DuPage County, issued a ruling finding two significant flaws with the photo enforcement process. Judge McKillip ruled that the citation and accompanying notice informing recipients of their rights and responsibilities were insufficient as was the procedure for admitting digital

images into evidence. After Judge McKillip's ruling, the Wood Dale Police Department ceased issuing citations and began issuing warnings to motorists observed in apparent violation of traffic laws at this location.

#### Irving Park Road Operations in 2001 and 2002

As a result of Judge McKillip's ruling, no citations were issued at the Irving Park Road site in 2001. In August 2001, Public Act 92-0245 was enacted to remedy the deficiencies outlined by Judge McKillip. This Act made seven significant changes to the existing state statute; two changes directly addressed the deficiencies identified by Judge

McKillip, and five modified other portions of the law.<sup>8</sup>

In spring 2002, Wood Dale worked with the DuPage County State's Attorney to revise the accompanying notice as specified in Public Act 92-0245. On Apr. 15, 2002, Wood Dale began a 30-day test period to ensure that the site was functioning properly. Wood Dale also entered into a new agreement with ACS to maintain the site, since the two-year period during which the State was to pay for

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<sup>8</sup> The changes necessary to permit resumption of photo enforcement at the Irving Park Road Installation were to explicitly state the language that should be included in the accompanying notice and to state that photos were admissible as long as the cameras used to record images were certified as being in good working order at the beginning and end of each day. Other changes made by Public Act 92-0245 included changing the fine structure so that a first offense results in a \$250 fine instead of \$500 and requiring a \$500 fine for a second offense. The use of community service as a penalty was removed as an option, as well. In addition, for a second offense, the secretary of state's office may suspend the registration of the motor vehicle for at least six months. Public Act 92-0245 also explicitly directed corporate authorities to use the penalty system outlined above, changed the duration of the pilot program from two years to five years, and stated that if any portion of the statute is later found to be unconstitutional, the remainder of the statute shall remain in force, since that was the intent of the General Assembly.



maintenance had expired.<sup>9</sup> The Village hoped to resume issuing citations in May 2002.

### **River Road**

The second installation to come on line became fully active in July 2000 at River Road in Naperville. It uses a completely digital system from Science Applications International (SAIC). River Road is on Metra's BNSF Line to Aurora. The grade crossing is on a local street that has approximately 147 daily trains and an annual average daily traffic count of 9,100 vehicles. Its baseline violation rates were captured in May and June of 2000. Figure 4 provides a general overview of the River Road site.

The photo enforcement process utilized by SAIC at Naperville is similar to the process implemented by ACS at Irving Park Road. However, traffic at River Road is monitored in both directions. Another difference is in the technology used to record images.

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<sup>9</sup> The monthly maintenance agreement is \$8,000 per month and can be voided should a court find any further problems with the photo enforcement program that prohibit Wood Dale from issuing citations.

The SAIC installation at River Road is completely digital, using a digital camera, supplemented with a digital video camera, to record violations

At River Road, digital images are transmitted directly to a dedicated workstation at the Naperville Police Department for review by the officer responsible for Naperville's photo enforcement program. Figure 5 provides an illustration of the cameras in use at Naperville.

### River Road Operations in 2000

Figure 6 graphically illustrates the decline in the number of monthly violations observed by the photo enforcement system in 2000.<sup>10</sup> Violations declined 73% from 315 violations recorded in the 30-day baseline violation period (June 2000) to October when 85 violations were recorded. Thus, the River Road site would meet the FRA's effectiveness threshold of 49% if the final rule requiring train horn sounding is published as proposed.

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<sup>10</sup> November and December data under-represent the true number of violations due to mechanical problems with the lighting in November and snow in December.



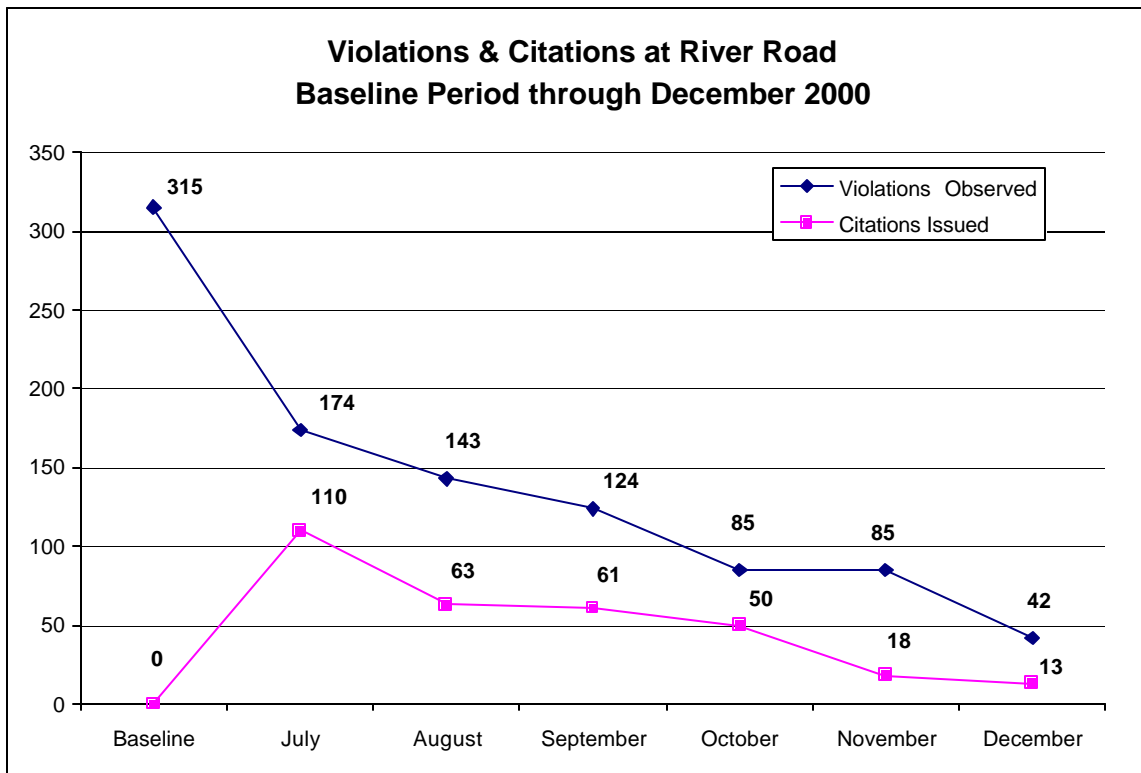
Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 4.** River Road in Naperville, Illinois looking south before the installation of the cameras



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 5.** Camera installations at River Road



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 6.** Violations and citations at River Road baseline period (June) - December 2000<sup>11</sup>

### Reliability During 2000

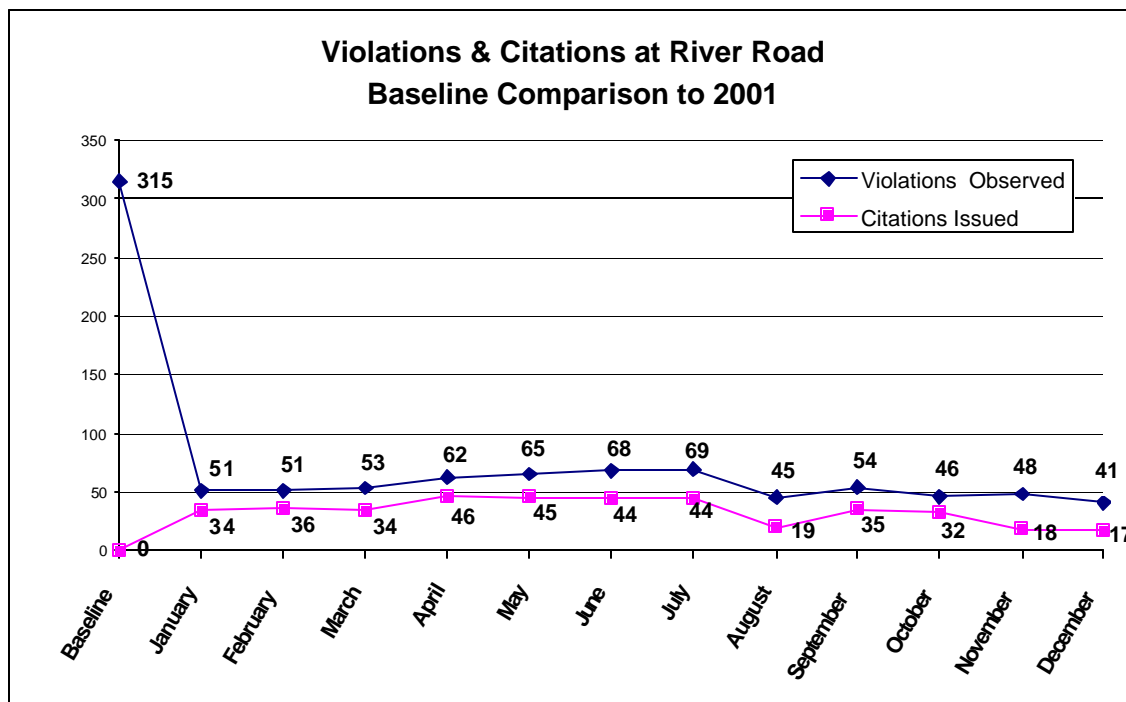
In November and December 2000, the River Road installation experienced mechanical problems. In November, the lights used to provide supplemental illumination failed. In December, the cameras experienced a condensation build up, impairing their ability to capture high quality images. As result, a substantial number of violations observed in

<sup>11</sup> Note: No citations were issued during the 30-day baseline violation data collection period.

November and December could not be prosecuted due to poor quality images. Overall, the availability rate of the River Road installation for 2000 was estimated to be 83%.

### River Road Operations in 2001

Naperville issues citations under a local ordinance that complements the state statute and was not affected by Judge McKillip's ruling. Nevertheless, Naperville immediately made changes in the



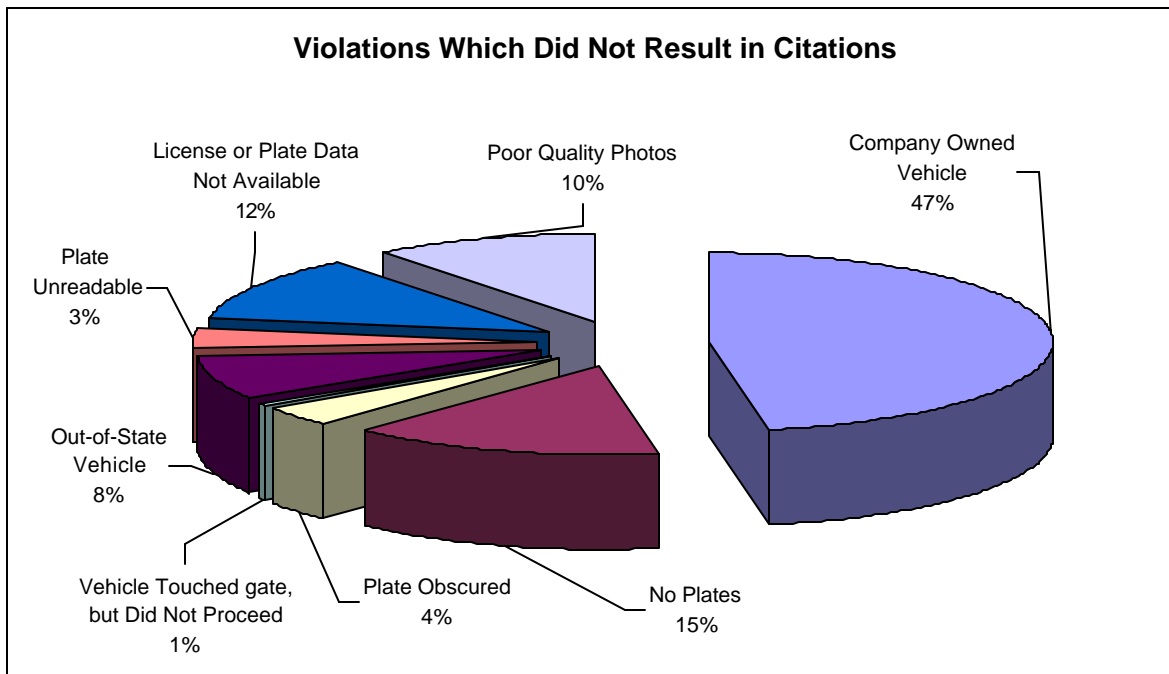
Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 7.** 2001 Photo enforcement results at River Road<sup>12</sup>

accompanying notice to provide additional information to ensure that recipients of the uniform traffic citation were aware of their rights and responsibilities in responding to the citation. Furthermore, the officer in charge of Naperville's program brings the entire computer installation to the court proceeding. As a result, the Judge handling Naperville's cases has never found any problem with the use of photographic evidence.

During 2001, Naperville achieved even greater compliance with the grade crossing traffic law, attaining an 87% reduction in the number of violations recorded, which fell from 315 per month during the June 2000 baseline period to 41 in December 2001. Figure 7 presents a graphic illustration of the success of Naperville's photo enforcement program in 2001.

<sup>12</sup> No citations were issued during the 30-day baseline violation data collection period.



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 8.** Reasons why not all violations result in citations

### Issuance of Citations

Not all violations that are observed can be turned into citations. Vehicles registered to corporations or to out-of-state owners cannot be prosecuted, since the police department cannot obtain the information required to issue a citation. Likewise, environmental conditions and mechanical problems with the cameras may also prevent the police department from issuing a citation to the vehicle's registered owner. Between July 2000 and December 2001 1,306 violations were observed at the

River Road grade crossing. Of these, 719 received citations, and 587 apparent violations (45%) did not result in citations. 59% of such cases resulted either from the vehicle being registered to a corporate owner or because the citation could not be processed within the 30-day period specified in the statute. Only 10% of the violations not resulting in citations were attributed to poor quality photos. Figure 8 illustrates the role that the various administrative, environmental and mechanical variables played in preventing the Naperville

Police Department from issuing citations to observed violators.

In 2001, Naperville was impacted by Public Act 92-0245, which changed the penalties that can be imposed on those found guilty of violating grade crossing traffic laws. Naperville reduced the amount of the fine for first time offenders to \$250 as required by the revised statute. However, Naperville continued to implement community service as a penalty even after community service had been removed as one of the permissible penalties.

#### Disposition of Citations

As of April 2002, 635 of the 719 citations issued had made their way through the judicial system. Of the 635 citations processed, 626 resulted in a guilty decision (98.5 percent); one citation was not prosecuted; six individuals did not appear for their court date and summons were issued; only one citation resulting in a not guilty decision. Figure 10 provides a summary of the penalties imposed their court date and summons were issued; only one citation resulting in a not guilty decision. Figure 9 provides a summary of the penalties imposed.

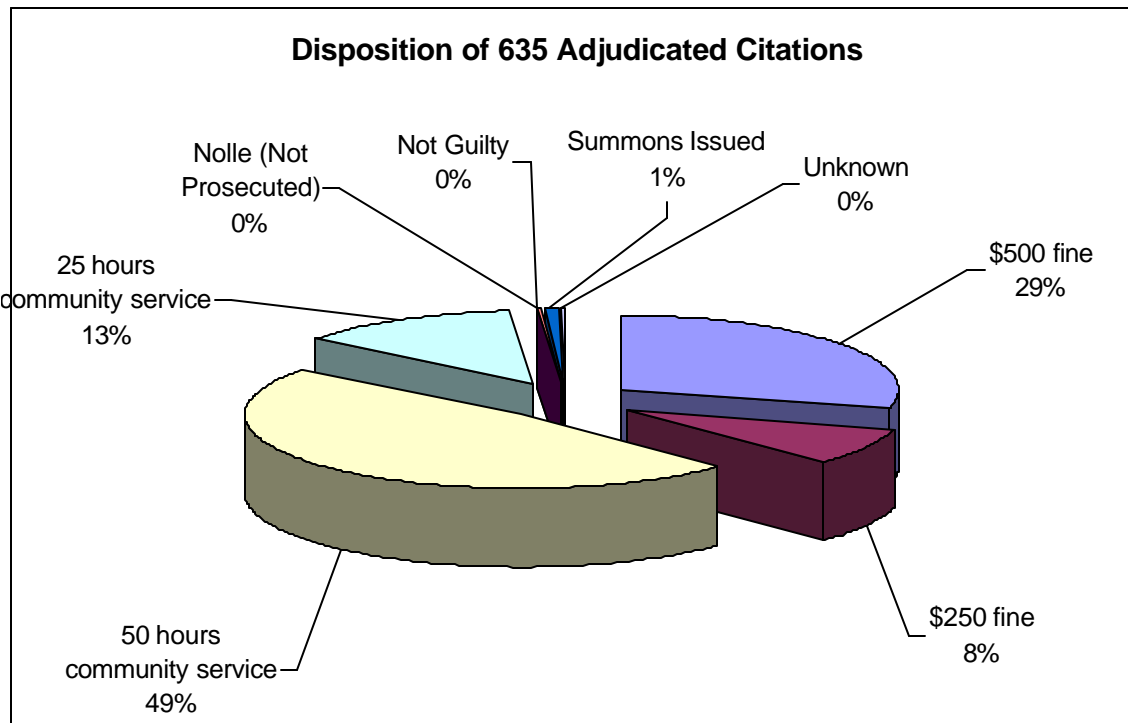
#### Cost of Operation

The River Road site cost approximately \$296,200 to construct and operate for two years. This was paid from the Commission's Grade Crossing Protection Fund. The monthly maintenance cost is approximately \$800, which means that the physical construction of the site cost approximately \$277,000. During this time, the site generated approximately \$23,715 in court costs and \$106,000 in fines for a total revenue of \$129,715 to offset the capital and maintenance costs.

Considering Naperville's preference for using community service as a penalty and the reduction of the fine to \$250 for a first offense, it will take four to five years of operation for the installation to recover its construction and maintenance costs through the fees and fines collected.

On Jul. 1, 2002, the site had been in service for two years, and the commission was no longer required to pay the monthly maintenance cost, so the city will have to enter into a contract with SAIC or another vendor to perform





Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 9.** Disposition of citations

routine physical maintenance at the site. However, the City performs most of the operation and maintenance of the site with its own staff, so it is able to keep the cash cost of operation and maintenance very low.

The nature of the site's entirely digital equipment also contributes to a low monthly maintenance cost as compared to Wood Dale's monthly maintenance fee of \$8,000 at the Irving Park Road installation. One officer is dedicated to processing violations and

handling court cases, spending as much as 20% of his regular workweek handling the site.

### Sunset Avenue

The third operational photo enforcement site is at Sunset Avenue in unincorporated Winfield Township. Sunset Avenue is on Metra's UP West Line to Geneva. The grade crossing has 110 trains per day, 58 of which are Metra trains. Approximately 300



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 10.** Sunset Avenue in Winfield Township looking south before installation of the cameras



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 11.** Camera installation at Sunset Avenue

vehicles per day use this crossing to access a residential subdivision. Both directions of travel are under surveillance at this location.

The Sunset Avenue site uses a Nestor Traffic Systems digital surveillance system that has two digital cameras placed to capture images of vehicles' license plates and drivers. Figure 10 provides a photo of the location prior to installation of the system. Figure 11 provides an example of the camera installation at Sunset Avenue. (The camera is located in the circular enclosure hanging beneath the auxiliary spotlight.)

#### Sunset Avenue Operations

The County did not use issue citations at the Sunset Avenue site in 2001 because of Judge McKillip's October 2000 ruling. As of April 2002, the Sheriff's office was working to revise the notice that accompanies the uniform traffic citation and anticipated using the site for enforcement purposes in the summer of 2002. Baseline violation data was, however, acquired between April 1 and May 5, 2001. During the first 15-day period one vehicle was observed violating the grade crossing traffic laws.

During the second 15-day period, after the press release and installation of warning signs, no vehicles were observed violating the grade crossing traffic laws.

For analytical purposes, the site's record of baseline violations is one violation during the required 30-day baseline violation data collection period. This will make maintaining a 49% or greater reduction in subsequent violations very difficult in the future, since all it will take is one violation to place the site out of the effectiveness bounds required by the FRA's proposed horn rule.

#### Reliability During 2001

The Sunset Avenue site was a custom designed site that did not use "off-the-shelf" technology. Between August 1 and Dec. 31, 2001, the site was down due to a computer hard drive failure (causing an extensive loss of configuration data), the need to replace the two digital cameras, and a recurring problem with the computer server located at the Sheriff's office. In addition, the software had some difficulties in discerning train movements from vehicle movements, resulting in the

need for Nestor Traffic Systems to manually screen violations.

### Lessons Learned

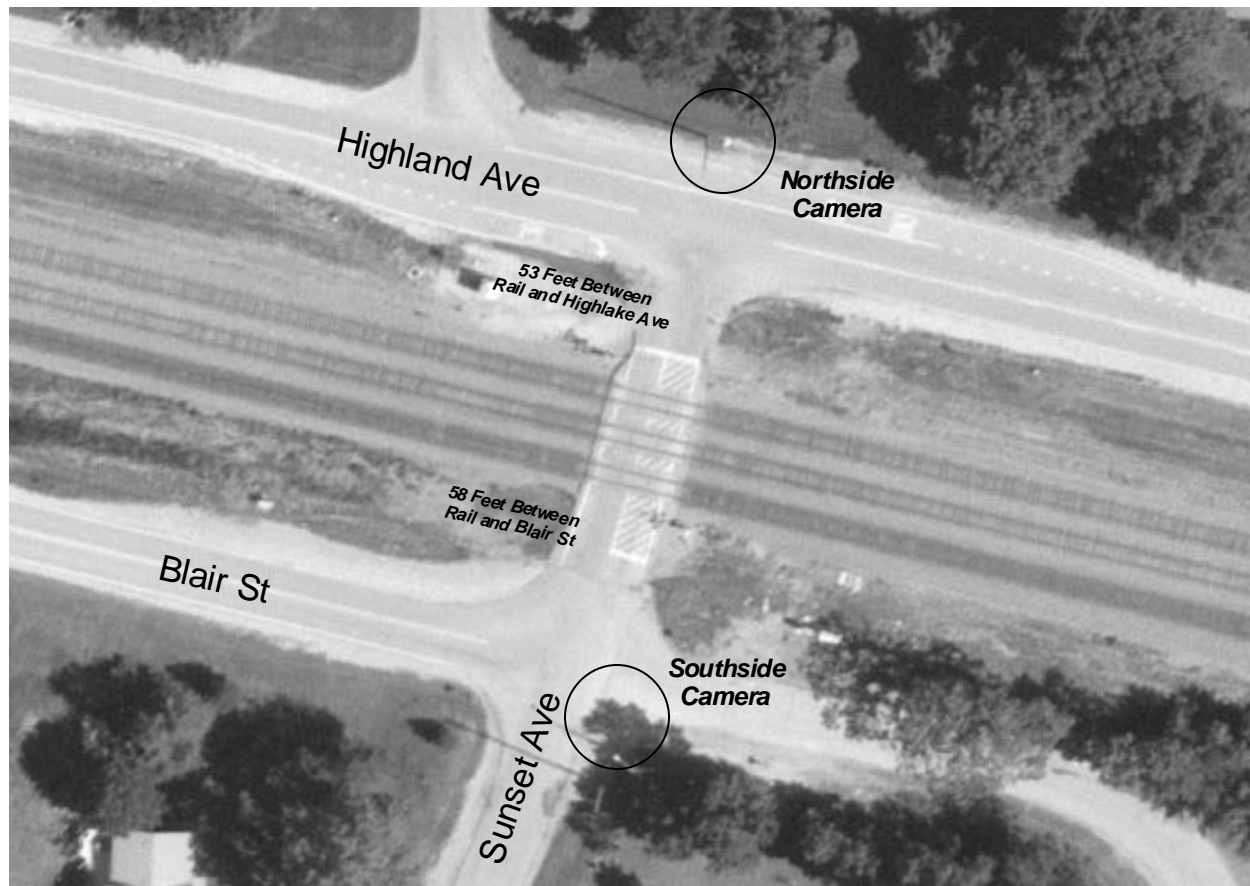
The Sunset Avenue site has not been implemented to its full capabilities. Nevertheless, a number of valuable lessons have been learned. In terms of project management, Nestor Traffic Systems felt that having one point of contact would have simplified some management and construction issues. The DuPage County Department of Transportation let the contract and supervised installation of the site, rather than the Sheriff's office, which will be using the site. This may be contrasted with the River Road and Irving Park Road sites, where the respective police departments are the principal points of contact.

Another lesson learned at Sunset Avenue is that the limited space a vehicle can occupy while traversing the Sunset Avenue crossing and the elevated profile of its grade crossing make it difficult to obtain valid images across all vehicle types. In addition, parallel roads run east west along the railroad tracks and turn at a 90-degree

angle across the tracks on Sunset Avenue. The parallel roads are only about 50 feet from the near edge of the closest rail, so there is very little distance for a camera to focus on the vehicle and obtain the three required images of the vehicle, the driver's face, and the registration plate. Finally, the elevated profile of the grade crossing makes it difficult for a camera to focus on the driver, since the height of the windshield above the pavement and the angle of the windshield with respect to the camera, are constantly changing.

Figure 12 provides an aerial view of the grade crossing illustrating the problems with the adjacent roads and limited space available in which to obtain images.

Another invaluable lesson learned at Sunset Avenue is that it is important to conduct a pre-implementation traffic study to gauge the quantity and nature of existing traffic law violations. With an average annual daily traffic count of 300 vehicles and only one observed violation during the 30-day baseline period, this site will not generate a sufficient volume of violations to accurately evaluate the



Source: Illinois Commerce Commission, *Photo Enforcement at Highway-Rail Grade Crossings: 2001 Status Report to the General Assembly*, Working Paper 2002-02, May 2002.

**Fig. 12.** Aerial view of Sunset Avenue grade crossing

performance of the photo enforcement installation at this location.

#### Cost of Operation

The cost to construct the Sunset Avenue installation was \$247,850 with an additional \$17,500 for a backup power generator to ensure that the site was available in the event of a power outage. The annual maintenance cost is \$39,383, or \$3,282 per month. The

total cost for installation, backup power supply and two years of maintenance was \$344,166, which was paid from the Commission's Grade Crossing Protection Fund.

#### **Summary and Conclusions**

Photo enforcement of traffic laws is a relatively new technology that has not been implemented on a national level. As of November 2001, 13 states

had implemented photo enforcement programs. Six states; Arkansas, California, Illinois, Iowa, North Carolina and Texas utilized photo enforcement at highway-rail grade crossings.

Each of the sites in DuPage County were custom installations utilizing sophisticated computer processes to record apparent violations, automatically review the apparent violations and then use custom citation writing software to complete the process. Once the sites were constructed, they experienced few mechanical problems. Overall, the Irving Park Road site was available and working 98% of the time (377 days out of 386 days), while the River Road site was in good working order 95% of the time (485 days out of 515). However, the Sunset Avenue site was out-of-service for approximately five of the eight months it could have been issuing citations from a functional perspective, yielding an estimated availability rate of just 38%. Still, the most significant problem encountered was not mechanical but procedural, resulting from the court decision that blocked prosecution of apparent violations at Irving Park Road.

Photo enforcement has been very effective in reducing the rate of

violations. The River Road site in Naperville achieved an 87% reduction in the number of violations between July 2000 and December 2001. The Irving Park Road site achieved a 47% reduction in the number of violations between December 1999 and October 2000, when it ceased issuing citations. The effectiveness of the Sunset Avenue site has yet to be determined. Perhaps more telling is that Irving Park Road experienced three to four collisions per year prior to photo enforcement and had only one collision during 13 months of photo enforcement; River Road, which averaged two collisions every five years, had no collisions during the July 2000 through December 2001 period when photo enforcement was in place.

FRA's proposed rule requiring horn sounding at all public grade crossings indicates that communities may utilize photo enforcement as a supplemental safety measure when designing quiet zones. However, photo enforcement installations are expensive to install and maintain. Table 1 indicates that the minimum cost to install and maintain a single installation for two years is \$296,200, with the maximum cost being \$344,116. One scenario suggested by FRA envisions four



installations with one camera rotating among them. Given an average cost at the three pilot installations of \$314,000, a community would need to invest approximately \$1.2 million to construct and operate a four-camera installation. In addition, local police departments incur costs in operating a photo enforcement site. Naperville has one officer assisted by a technician responsible for operation of their site. Wood Dale has trained five officers to use their system. Each department devotes approximately one full day per week to process citations and appear in court.

Table 1 indicates that, although the reduction of the fine and the use of community service as opposed to a cash fine will delay the time required to

recover construction and operating costs, photo enforcement installations appear to have the potential to pay for themselves within three to four years.

Photo enforcement has proven its ability to deter violations and collisions. Nevertheless, its cost is a substantial impediment to its widespread use. In contrast, where applicable, median barriers (at an average cost of about \$60 to \$70 per foot, or \$12,000 to \$14,000 for a typical grade crossing) are significantly less expensive than photo enforcement installations and can offer comparable effectiveness. Therefore, photo enforcement is likely to be implemented only at selected high-risk locations that have a history of collisions.

**TABLE 1**  
**COST AND REVENUE COMPARISON**

Site	Date in Operation	Months of Operation as of Dec. 2001	Cost to Construct	Cost of 24 Months of Maint.	Total Cost	Citations Issued	Guilty Decisions	Revenue as of Dec. 2001
River Road	July 2000	18	\$277,000	\$19,200	\$296,200	719	635	\$129,715
Sunset Avenue	May 2002	0	\$265,350	\$78,766	\$344,116	0	0	\$0
Irving Park Road	Dec. 1999	11	\$110,000	\$192,000	\$302,000	762	355	\$120,095
<b>Total</b>		<b>29</b>	<b>\$652,350</b>	<b>\$289,966</b>	<b>\$942,316</b>	<b>1,481</b>	<b>990</b>	<b>\$249,810</b>

Source: Illinois Commerce Commission, Photo Enforcement at Highway-Rail Grad Crossings: 2001 Status Report to the General Assembly, Working Paper 2002-02, May 2002.

## **SEC. 264. UNIFIED CARRIER REGISTRATION SYSTEM.**

(a) Section 13908 is amended to read as follows:

### **Sec. 13908. Registration and other reforms**

#### **(a) ESTABLISHMENT OF UNIFIED CARRIER REGISTRATION SYSTEM-**

The Secretary, in cooperation with the States, representatives of the motor carrier, motor private carrier, freight forwarder and broker industries, and after notice and opportunity for public comment, shall issue within 1 year after the date of enactment of the Unified Carrier Registration Act of 2003 regulations to establish, an online, Federal registration system to be named the Unified Carrier Registration System to replace--

- (1) the current Department of Transportation identification number system, the Single State Registration System under section 14504 of this title;
- (2) the registration system contained in this chapter and the financial responsibility information system under section 13906; and
- (3) the service of process agent systems under sections 503 and 13304 of this title.

#### **(b) ROLE AS CLEARINGHOUSE AND DEPOSITORY OF INFORMATION-**

The Unified Carrier Registration System shall serve as a clearinghouse and depository of information on, and identification of, all foreign and domestic motor carriers, motor private carriers, brokers, and freight forwarders, and others required to register with the Department, including information with respect to a carrier's safety rating, compliance with required levels of financial responsibility, and compliance with the provisions of section 14504a of this title. The Secretary shall ensure that Federal agencies, States, representatives of the motor carrier industry, and the public have access to the Unified Carrier Registration System, including the records and information contained in the System.

**(c) PROCEDURES FOR CORRECTING INFORMATION-** Not later than 60 days after the effective date of this section, the Secretary shall prescribe regulations establishing procedures that enable a motor carrier to correct erroneous information contained in any part of the Unified Carrier Registration System.

**(d) FEE SYSTEM-** The Secretary shall establish, under section 9701 of title 31, a fee system for the Unified Carrier Registration System according to the following guidelines:

- (1) REGISTRATION AND FILING EVIDENCE OF FINANCIAL RESPONSIBILITY-** The fee for new registrants shall as nearly as possible cover the costs of processing the registration and conducting the safety audit or examination, if required, but shall not exceed \$300.
- (2) EVIDENCE OF FINANCIAL RESPONSIBILITY-** The fee for filing evidence of financial responsibility pursuant to this section shall not exceed \$10 per filing. No fee shall be charged for a filing for purposes of

designating an agent for service of process or the filing of other information relating to financial responsibility.

**(3) ACCESS AND RETRIEVAL FEES-**

(A) IN GENERAL- Except as provided in subparagraph (B), the fee system shall include a nominal fee for the access to or retrieval of information from the Unified Carrier Registration System to cover the costs of operating and upgrading the System, including the personnel costs incurred by the Department and the costs of administration of the Unified Carrier Registration Agreement.

(B) EXCEPTIONS- There shall be no fee charged--

(i) to any agency of the Federal Government or a State government or any political subdivision of any such government for the access to or retrieval of information and data from the Unified Carrier Registration System for its own use; or

(ii) to any representative of a motor carrier, motor private carrier, leasing company, broker, or freight forwarder (as each is defined in section 14504a of this title) for the access to or retrieval of the individual information related to such entity from the Unified Carrier Registration System for the individual use of such entity.'

**SEC. 265. REGISTRATION OF MOTOR CARRIERS BY STATES.**

(a) TERMINATION OF REGISTRATION PROVISIONS- Section 14504 is amended by adding at the end the following:

(d) TERMINATION OF PROVISIONS- Subsections (b) and (c) shall cease to be effective on the first January 1st occurring more than 12 months after the date of enactment of the Unified Carrier Registration Act of 2003.'

(b) UNIFIED CARRIER REGISTRATION SYSTEM PLAN AND AGREEMENT- Chapter 145 is amended by inserting after section 14504 the following:

**Sec. 14504a. Unified carrier registration system plan and agreement**

(a) DEFINITIONS- In this section and section 14506 of this title:

**(1) COMMERCIAL MOTOR VEHICLE-**

(A) IN GENERAL- Except as provided in subparagraph (B), the term commercial motor vehicle' has the meaning given the term in section 31101 of this title.

(B) EXCEPTION- With respect to motor carriers required to make any filing or pay any fee to a State with respect to the motor carrier's authority or insurance related to operation within such State, the term commercial motor vehicle' means any self-propelled vehicle used on the highway in commerce to transport passengers or property for compensation regardless of the gross



vehicle weight rating of the vehicle or the number of passengers transported by such vehicle.

(2) BASE-STATE-

(A) IN GENERAL- The term Base-State' means, with respect to the Unified Carrier Registration Agreement, a State--

(i) that is in compliance with the requirements of subsection (e); and

(ii) in which the motor carrier, motor private carrier, broker, freight forwarder or leasing company maintains its principal place of business.

(B) DESIGNATION OF BASE-STATE- A motor carrier, motor private carrier, broker, freight forwarder or leasing company may designate another State in which it maintains an office or operating facility as its Base-State in the event that--

(i) the State in which the motor carrier, motor private carrier, broker, freight forwarder or leasing company maintains its principal place of business is not in compliance with the requirements of subsection (e); or

(ii) the motor carrier, motor private carrier, broker, freight forwarder or leasing company does not have a principal place of business in the United States.

(3) INTRASTATE FEE- The term intrastate fee' means any fee, tax, or other type of assessment, including per vehicle fees and gross receipts taxes, imposed on a motor carrier or motor private carrier for the renewal of the intrastate authority or insurance filings of such carrier with a State.

(4) LEASING COMPANY- The term leasing company' means a lessor that is engaged in the business of leasing or renting for compensation motor vehicles without drivers to a motor carrier, motor private carrier, or freight forwarder.

(5) MOTOR CARRIER- The term motor carrier' has the meaning given the term in section 13102(12) of this title, but shall include all carriers that are otherwise exempt from the provisions of part B of this title pursuant to the provisions of chapter 135 of this title or exemption actions by the former Interstate Commerce Commission under this title.

(6) PARTICIPATING STATE- The term participating state' means a State that has complied with the requirements of subsection (e) of this section.

(7) SSRS- The term SSRS' means the Single State Registration System in effect on the date of enactment of the Unified Carrier Registration Act of 2003.

(8) UNIFIED CARRIER REGISTRATION AGREEMENT- The terms Unified Carrier Registration Agreement' and UCR Agreement' mean the interstate agreement developed under the Unified Carrier Registration Plan governing the collection and distribution of registration and financial responsibility information provided and fees paid by motor carriers, motor private carriers, brokers, freight forwarders and leasing companies pursuant to this section.

(9) UNIFIED CARRIER REGISTRATION PLAN- The terms Unified Carrier Registration Plan' and UCR Plan' mean the organization of State, Federal and industry representatives responsible for developing, implementing and administering the Unified Carrier Registration Agreement.

(10) VEHICLE REGISTRATION- The term vehicle registration' means the registration of any commercial motor vehicle under the International Registration Plan or any other registration law or regulation of a jurisdiction.

(b) APPLICABILITY OF PROVISIONS TO FREIGHT FORWARDERS- A freight forwarder that operates commercial motor vehicles and is not required to register as a carrier pursuant to section 13903(b) of this title shall be subject to the provisions of this section as if a motor carrier.

(c) UNREASONABLE BURDEN- For purposes of this section, it shall be considered an unreasonable burden upon interstate commerce for any State or any political subdivision of a State, or any political authority of 2 or more States--

(1) to enact, impose, or enforce any requirement or standards, or levy any fee or charge on any interstate motor carrier or interstate motor private carrier in connection with--

(A) the registration with the State of the interstate operations of a motor carrier or motor private carrier;

(B) the filing with the State of information relating to the financial responsibility of a motor carrier or motor private carrier pursuant to sections 31138 or 31139 of this title;

(C) the filing with the State of the name of the local agent for service of process of a motor carrier or motor private carrier pursuant to sections 503 or 13304 of this title; or

(D) the annual renewal of the intrastate authority, or the insurance filings, of a motor carrier or motor private carrier, or other intrastate filing requirement necessary to operate within the State, if the motor carrier or motor private carrier is--

(i) registered in compliance with section 13902 or section 13905(b) of this title; and

(ii) in compliance with the laws and regulations of the State authorizing the carrier to operate in the State pursuant to section 14501(c)(2)(A) of this title

except with respect to--

(I) intrastate service provided by motor carriers of passengers that is not subject to the preemptive provisions of section 14501(a) of this title,

(II) motor carriers of property, motor private carriers, brokers, or freight forwarders, or their services or operations, that are described in subparagraphs (B) and (C) of section 14501(c)(2) and section 14506(c)(3) or permitted pursuant to section 14506(b) of this title, and



(III) the intrastate transportation of waste or recyclables by any carrier); or

(2) to require any interstate motor carrier or motor private carrier to pay any fee or tax, not proscribed by paragraph (1)(D) of this subsection, that a motor carrier or motor private carrier that pays a fee which is proscribed by that paragraph is not required to pay.

(d) Unified Carrier Registration Plan-

(1) BOARD OF DIRECTORS-

(A) GOVERNANCE OF PLAN- The Unified Carrier Registration Plan shall be governed by a Board of Directors consisting of representatives of the Department of Transportation, Participating States, and the motor carrier industry.

(B) NUMBER- The Board shall consist of 15 directors.

(C) COMPOSITION- The Board shall be composed of directors appointed as follows:

(i) FEDERAL MOTOR CARRIER SAFETY

ADMINISTRATION- The Secretary shall appoint 1 director from each of the Federal Motor Carrier Safety Administration's 4 Service Areas (as those areas were defined by the Federal Motor Carrier Safety Administration on January 1, 2003), from among the chief administrative officers of the State agencies responsible for overseeing the administration of the UCR Agreement.

(ii) STATE AGENCIES- The Secretary shall appoint 5 directors from the professional staffs of State agencies responsible for overseeing the administration of the UCR Agreement in their respective States. Nominees for these 5 directorships shall be submitted to the Secretary by the national association of professional employees of the State agencies responsible for overseeing the administration of the UCR Agreement in their respective States.

(iii) MOTOR CARRIER INDUSTRY- The Secretary shall appoint 5 directors from the motor carrier industry. At least 1 of the appointees shall be an employee of the national trade association representing the general motor carrier of property industry.

(iv) DEPARTMENT OF TRANSPORTATION- The Secretary shall appoint the Deputy Administrator of the Federal Motor Carrier Safety Administration, or such other presidential appointee from the United States Department of Transportation, as the Secretary may designate, to serve as a director.

(D) CHAIRPERSON AND VICE-CHAIRPERSON- The Secretary shall designate 1 director as Chairperson and 1 director as Vice-Chairperson of the Board. The Chairperson and Vice-

Chairperson shall serve in such capacity for the term of their appointment as directors.

(E) TERM- In appointing the initial Board, the Secretary shall designate 5 of the appointed directors for initial terms of 3 years, 5 of the appointed directors for initial terms of 2 years, and 5 of the appointed directors for initial terms of 1 year. Thereafter, all directors shall be appointed for terms of 3 years, except that the term of the Deputy Administrator or other individual designated by the Secretary under subparagraph (C)(iv) shall be at the discretion of the Secretary. A director may be appointed to succeed himself or herself. A director may continue to serve on the Board until his or her successor is appointed.

**(2) RULES AND REGULATIONS GOVERNING THE UCR**

AGREEMENT- The Board of Directors shall develop the rules and regulations to govern the UCR Agreement and submit such rules and regulations to the Secretary for approval and adoption. The rules and regulations shall--

(A) prescribe uniform forms and formats, for--

- (i) the annual submission of the information required by a Base-State of a motor carrier, motor private carrier, leasing company, broker, or freight forwarder;
- (ii) the transmission of information by a Participating State to the Unified Carrier Registration System;
- (iii) the payment of excess fees by a State to the designated depository and the distribution of fees by the depository to those States so entitled; and
- (iv) the providing of notice by a motor carrier, motor private carrier, broker, freight forwarder, or leasing company to the Board of the intent of such entity to change its Base-State, and the procedures for a State to object to such a change under subparagraph (C) of this paragraph;

(B) provide for the administration of the Unified Carrier Registration Agreement, including procedures for amending the Agreement and obtaining clarification of any provision of the Agreement;

(C) provide procedures for dispute resolution that provide due process for all involved parties; and

(D) designate a depository.

**(3) COMPENSATION AND EXPENSES-** Except for the representative of the Department of Transportation appointed pursuant to paragraph 1(D), no director shall receive any compensation or other benefits from the Federal Government for serving on the Board or be considered a Federal employee as a result of such service. All Directors shall be reimbursed for expenses they incur attending duly called meetings of the Board. In addition, the Board may approve the reimbursement of expenses incurred by members of any subcommittee or task force appointed pursuant to

paragraph (5). The reimbursement of expenses to directors and subcommittee and task force members shall be based on the then applicable rules of the General Service Administration governing reimbursement of expenses for travel by Federal employees.



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(b) UNIFIED CARRIER REGISTRATION SYSTEM PLAN AND AGREEMENT- Chapter 145 is amended by inserting after section 14504 the following:

### **Sec. 14504a. Unified carrier registration system plan and agreement**

(a) DEFINITIONS- In this section and section 14506 of this title:

#### **(1) COMMERCIAL MOTOR VEHICLE-**

(A) IN GENERAL- Except as provided in subparagraph (B), the term commercial motor vehicle' has the meaning given the term in section 31101 of this title.

(B) EXCEPTION- With respect to motor carriers required to make any filing or pay any fee to a State with respect to the motor carrier's authority or insurance related to operation within such State, the term commercial motor vehicle' means any self-propelled vehicle used on the highway in commerce to transport passengers or property for compensation regardless of the gross vehicle weight rating of the vehicle or the number of passengers transported by such vehicle.

#### **(2) BASE-STATE-**

(A) IN GENERAL- The term Base-State' means, with respect to the Unified Carrier Registration Agreement, a State--

(i) that is in compliance with the requirements of subsection (e); and

(ii) in which the motor carrier, motor private carrier, broker, freight forwarder or leasing company maintains its principal place of business.

(B) DESIGNATION OF BASE-STATE- A motor carrier, motor private carrier, broker, freight forwarder or leasing company may designate another State in which it maintains an office or operating facility as its Base-State in the event that--

(i) the State in which the motor carrier, motor private carrier, broker, freight forwarder or leasing company maintains its principal place of business is not in compliance with the requirements of subsection (e); or

(ii) the motor carrier, motor private carrier, broker, freight forwarder or leasing company does not have a principal place of business in the United States.

(3) INTRASTATE FEE- The term intrastate fee' means any fee, tax, or other type of assessment, including per vehicle fees and gross receipts taxes, imposed on a motor carrier or motor private carrier for the renewal of the intrastate authority or insurance filings of such carrier with a State.

(4) LEASING COMPANY- The term leasing company' means a lessor that is engaged in the business of leasing or renting for compensation motor vehicles without drivers to a motor carrier, motor private carrier, or freight forwarder.

(5) MOTOR CARRIER- The term motor carrier' has the meaning given the term in section 13102(12) of this title, but shall include all carriers that are otherwise exempt from the provisions of part B of this title pursuant to the provisions of chapter 135 of this title or exemption actions by the former Interstate Commerce Commission under this title.

(6) PARTICIPATING STATE- The term participating state' means a State that has complied with the requirements of subsection (e) of this section.

(7) SSRS- The term SSRS' means the Single State Registration System in effect on the date of enactment of the Unified Carrier Registration Act of 2003.

(8) UNIFIED CARRIER REGISTRATION AGREEMENT- The terms Unified Carrier Registration Agreement' and UCR Agreement' mean the interstate agreement developed under the Unified Carrier Registration Plan governing the collection and distribution of registration and financial responsibility information provided and fees paid by motor carriers, motor private carriers, brokers, freight forwarders and leasing companies pursuant to this section.

(9) UNIFIED CARRIER REGISTRATION PLAN- The terms Unified Carrier Registration Plan' and UCR Plan' mean the organization of State, Federal and industry representatives responsible for developing, implementing and administering the Unified Carrier Registration Agreement.

(10) VEHICLE REGISTRATION- The term vehicle registration' means the registration of any commercial motor vehicle under the International Registration Plan or any other registration law or regulation of a jurisdiction.

(b) APPLICABILITY OF PROVISIONS TO FREIGHT FORWARDERS- A freight forwarder that operates commercial motor vehicles and is not required to register as a carrier pursuant to section 13903(b) of this title shall be subject to the provisions of this section as if a motor carrier.

(c) UNREASONABLE BURDEN- For purposes of this section, it shall be considered an unreasonable burden upon interstate commerce for any State or any political subdivision of a State, or any political authority of 2 or more States--

(1) to enact, impose, or enforce any requirement or standards, or levy any fee or charge on any interstate motor carrier or interstate motor private carrier in connection with--

(A) the registration with the State of the interstate operations of a motor carrier or motor private carrier;



(B) the filing with the State of information relating to the financial responsibility of a motor carrier or motor private carrier pursuant to sections 31138 or 31139 of this title;

(C) the filing with the State of the name of the local agent for service of process of a motor carrier or motor private carrier pursuant to sections 503 or 13304 of this title; or

(D) the annual renewal of the intrastate authority, or the insurance filings, of a motor carrier or motor private carrier, or other intrastate filing requirement necessary to operate within the State, if the motor carrier or motor private carrier is--

(i) registered in compliance with section 13902 or section 13905(b) of this title; and

(ii) in compliance with the laws and regulations of the State authorizing the carrier to operate in the State pursuant to section 14501(c)(2)(A) of this title

except with respect to--

(I) intrastate service provided by motor carriers of passengers that is not subject to the preemptive provisions of section 14501(a) of this title,

(II) motor carriers of property, motor private carriers, brokers, or freight forwarders, or their services or operations, that are described in subparagraphs (B) and (C) of section 14501(c)(2) and section 14506(c)(3) or permitted pursuant to section 14506(b) of this title, and

(III) the intrastate transportation of waste or recyclables by any carrier); or

(2) to require any interstate motor carrier or motor private carrier to pay any fee or tax, not proscribed by paragraph (1)(D) of this subsection, that a motor carrier or motor private carrier that pays a fee which is proscribed by that paragraph is not required to pay.

(d) Unified Carrier Registration Plan-

(1) BOARD OF DIRECTORS-

(A) GOVERNANCE OF PLAN- The Unified Carrier Registration Plan shall be governed by a Board of Directors consisting of representatives of the Department of Transportation, Participating States, and the motor carrier industry.

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(C) COMPOSITION- The Board shall be composed of directors appointed as follows:

(i) FEDERAL MOTOR CARRIER SAFETY

ADMINISTRATION- The Secretary shall appoint 1 director from each of the Federal Motor Carrier Safety Administration's 4 Service Areas (as those areas were defined by the Federal Motor Carrier Safety Administration on January 1, 2003), from among the chief administrative



officers of the State agencies responsible for overseeing the administration of the UCR Agreement.

(ii) STATE AGENCIES- The Secretary shall appoint 5 directors from the professional staffs of State agencies responsible for overseeing the administration of the UCR Agreement in their respective States. Nominees for these 5 directorships shall be submitted to the Secretary by the national association of professional employees of the State agencies responsible for overseeing the administration of the UCR Agreement in their respective States.

(iii) MOTOR CARRIER INDUSTRY- The Secretary shall appoint 5 directors from the motor carrier industry. At least 1 of the appointees shall be an employee of the national trade association representing the general motor carrier of property industry.

(iv) DEPARTMENT OF TRANSPORTATION- The Secretary shall appoint the Deputy Administrator of the Federal Motor Carrier Safety Administration, or such other presidential appointee from the United States Department of Transportation, as the Secretary may designate, to serve as a director.

(D) CHAIRPERSON AND VICE-CHAIRPERSON- The Secretary shall designate 1 director as Chairperson and 1 director as Vice-Chairperson of the Board. The Chairperson and Vice-Chairperson shall serve in such capacity for the term of their appointment as directors.

(E) TERM- In appointing the initial Board, the Secretary shall designate 5 of the appointed directors for initial terms of 3 years, 5 of the appointed directors for initial terms of 2 years, and 5 of the appointed directors for initial terms of 1 year. Thereafter, all directors shall be appointed for terms of 3 years, except that the term of the Deputy Administrator or other individual designated by the Secretary under subparagraph (C)(iv) shall be at the discretion of the Secretary. A director may be appointed to succeed himself or herself. A director may continue to serve on the Board until his or her successor is appointed.

(2) RULES AND REGULATIONS GOVERNING THE UCR AGREEMENT- The Board of Directors shall develop the rules and regulations to govern the UCR Agreement and submit such rules and regulations to the Secretary for approval and adoption. The rules and regulations shall--

(A) prescribe uniform forms and formats, for--

(i) the annual submission of the information required by a Base-State of a motor carrier, motor private carrier, leasing company, broker, or freight forwarder;

- (ii) the transmission of information by a Participating State to the Unified Carrier Registration System;
- (iii) the payment of excess fees by a State to the designated depository and the distribution of fees by the depository to those States so entitled; and
- (iv) the providing of notice by a motor carrier, motor private carrier, broker, freight forwarder, or leasing company to the Board of the intent of such entity to change its Base-State, and the procedures for a State to object to such a change under subparagraph (C) of this paragraph;

(B) provide for the administration of the Unified Carrier Registration Agreement, including procedures for amending the Agreement and obtaining clarification of any provision of the Agreement;

(C) provide procedures for dispute resolution that provide due process for all involved parties; and

(D) designate a depository.

(3) COMPENSATION AND EXPENSES- Except for the representative of the Department of Transportation appointed pursuant to paragraph 1(D), no director shall receive any compensation or other benefits from the Federal Government for serving on the Board or be considered a Federal employee as a result of such service. All Directors shall be reimbursed for expenses they incur attending duly called meetings of the Board. In addition, the Board may approve the reimbursement of expenses incurred by members of any subcommittee or task force appointed pursuant to paragraph (5). The reimbursement of expenses to directors and subcommittee and task force members shall be based on the then applicable rules of the General Service Administration governing reimbursement of expenses for travel by Federal employees.

(4) MEETINGS-

(A) IN GENERAL- The Board shall meet at least once per year. Additional meetings may be called, as needed, by the Chairperson of the Board, a majority of the directors, or the Secretary.

(B) QUORUM- A majority of directors shall constitute a quorum.

(C) VOTING- Approval of any matter before the Board shall require the approval of a majority of all directors present at the meeting.

(D) OPEN MEETINGS- Meetings of the Board and any subcommittees or task forces appointed pursuant to paragraph (5) of this section shall be subject to the provisions of section 552b of title 5.

(5) SUBCOMMITTEES-

(A) INDUSTRY ADVISORY SUBCOMMITTEE- The Chairperson shall appoint an Industry Advisory Subcommittee. The Industry Advisory Subcommittee shall consider any matter before the Board and make recommendations to the Board.



(B) OTHER SUBCOMMITTEES- The Chairperson shall appoint an Audit Subcommittee, a Dispute Resolution Subcommittee, and any additional subcommittees and task forces that the Board determines to be necessary.

(C) MEMBERSHIP- The chairperson of each subcommittee shall be a director. The other members of subcommittees and task forces may be directors or non-directors.

(D) REPRESENTATION ON SUBCOMMITTEES- Except for the Industry Advisory Subcommittee (the membership of which shall consist solely of representatives of entities subject to the fee requirements of subsection (f) of this section), each subcommittee and task force shall include representatives of the Federal Motor Carrier Safety Administration, the Participating States, and the motor carrier industry.

(6) DELEGATION OF AUTHORITY- The Board may contract with any private commercial or non-profit entity or any agency of a State to perform administrative functions required under the Unified Carrier Registration Agreement, but may not delegate its decision or policy-making responsibilities.

(7) DETERMINATION OF FEES- The Board shall determine the annual fees to be assessed carriers, leasing companies, brokers, and freight forwarders pursuant to the Unified Carrier Registration Agreement. In determining the level of fees to be assessed in the next Agreement year, the Board shall consider--

(A) the administrative costs associated with the Unified Carrier Registration Plan and the Agreement;

(B) whether the revenues generated in the previous year and any surplus or shortage from that or prior years enable the Participating States to achieve the revenue levels set by the Board; and

(C) the parameters for fees set forth in subsection (f)(1).

(8) LIABILITY PROTECTIONS FOR DIRECTORS- No individual appointed to serve on the Board shall be liable to any other director or to any other party for harm, either economic or non-economic, caused by an act or omission of the individual arising from the individual's service on the Board if--

(A) the individual was acting within the scope of his or her responsibilities as a director; and

(B) the harm was not caused by willful or criminal misconduct, gross negligence, reckless misconduct, or a conscious, flagrant indifference to the right or safety of the party harmed by the individual.

(9) INAPPLICABILITY OF FEDERAL ADVISORY COMMITTEE ACT- The Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the Unified Carrier Registration Plan or its committees.

(10) CERTAIN FEES NOT AFFECTED- This section does not limit the amount of money a State

may charge for vehicle registration or the amount of any fuel use tax a State may impose pursuant to the International Fuel Tax Agreement.

(e) STATE PARTICIPATION-

(1) STATE PLAN- No State shall be eligible to participate in the Unified Carrier Registration Plan or to receive any revenues derived under the Agreement, unless the State submits to the Secretary, not later than 3 years after the date of enactment of the Unified Carrier Registration Act of 2003, a plan--

(A) identifying the State agency that has or will have the legal authority, resources, and qualified personnel necessary to administer the Unified Carrier Registration Agreement in accordance with the rules and regulations promulgated by the Board of Directors of the Unified Carrier Registration Plan; and

(B) containing assurances that an amount at least equal to the revenue derived by the State from the Unified Carrier Registration Agreement shall be used for motor carrier safety programs, enforcement, and financial responsibility, or the administration of the UCR Plan and UCR Agreement.

(2) AMENDED PLANS- A State may change the agency designated in the plan submitted under this subsection by filing an amended plan with the Secretary and the Chairperson of the Unified Carrier Registration Plan.

(3) WITHDRAWAL OF PLAN- In the event a State withdraws, or notifies the Secretary that it is withdrawing, the plan submitted under this subsection, the State may no longer participate in the Unified Carrier Registration Agreement or receive any portion of the revenues derived under the Agreement.

(4) TERMINATION OF ELIGIBILITY- If a State fails to submit a plan to the Secretary as required by paragraph (1) or withdraws its plan under paragraph (3), the State shall be prohibited from subsequently submitting or resubmitting a plan or participating in the Agreement.

(5) PROVISION OF PLAN TO CHAIRPERSON- The Secretary shall provide a copy of each plan submitted under this subsection to the initial Chairperson of the Board of Directors of the Unified Carrier Registration Plan not later than 90 days of appointing the Chairperson.

(f) CONTENTS OF UNIFIED CARRIER REGISTRATION AGREEMENT- The Unified Carrier Registration Agreement shall provide the following:

(1) DETERMINATION OF FEES-

(A) Fees charged motor carriers, motor private carriers, or freight forwarders in connection with the filing of proof of financial responsibility under the UCR Agreement shall be based on the number of commercial motor vehicles owned or operated by the motor carrier, motor private carrier, or freight forwarder. Brokers and leasing companies shall pay the same fees as the smallest bracket of motor carriers, motor private carriers, and freight forwarders.

# RAIL FREIGHT TRANSPORT: CRITICAL ISSUES

Panel Presentation

27<sup>th</sup> Annual National Conference of Regulatory Attorneys

Chicago, Illinois

May 18, 2004

John C. Spychalski

Professor of Supply Chain Management

The Pennsylvania State University

University Park, PA 16802

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## RAIL FREIGHT TRANSPORT – CRITICAL ISSUES

- CHANGES IN INDUSTRY STRUCTURE
  - Class I Sector: 1976: 52 – 2004: 7
  - Regional and Short Line Sector: 1976: 340 (approx.) – 2002: 545
- Class I Rail Industry Performance Under Duopoly
  - Significant and almost continuous decline in rates: down 45% in inflation-adjusted dollars, 20% in current dollars, 1984-1999
  - Explosive growth in productivity: 50% more ton-miles, 61% fewer employees, 38% fewer track miles, 23% fewer cars, 28% fewer locomotives, 1984-1999
  - Rate of return: improved from 1970s, but still below cost of capital

- Class I Rail Industry Performance Under Duopoly *Plus* Monopsony
  - Reduced shipment routing alternatives
  - Rising Shippers' bargaining power – fewer, larger freight customers
  - Bundling of multiple lanes of rail freight into single long-term contracts
  - Declining rail rate (price)-to-marginal cost ratios
  - Weakened ability to recapitalize infrastructure
  - Question: will post-2003 freight traffic congestion conditions in West reverse decline in average rail pricing power?
- Private-Public Partnerships for Rail Infrastructure.
- Explosive Growth in Safety, Security, and Environmental Regulation: Do Benefits  
Necessarily *Always* Exceed Private + Societal Costs?
- Joint Freight-Passenger Use of Infrastructure: Operational and Financial Conflicts and Opportunities

- Intermodal Potential: Much Yet Unrealized?

# National Conference of Regulatory Attorneys - Chicago, IL

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## Illinois Commerce Commission Crossing Safety Activities



**Michael E. Stead**  
**Rail Safety Program**  
**Administrator**

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# ICC MISSION: IMPROVE RAIL SAFETY

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- Engineering
    - Crossing Safety Improvement Program
  - Enforcement
    - Safety Assurance & Compliance
  - Education
    - Operation Lifesaver
-



# Rail Safety Inspection Programs

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- Track Safety
- Signal & Train Control
- Transport of Hazardous Materials by Rail
- Operating Practices



# Crossing Safety Improvement Program

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- Grade Crossing Protection Fund
- 5-Year Plan for Safety Improvements
- Grade Crossings and Bridges





# Crossing Information

- **8,524 Public Grade Crossings<sup>1</sup>**
  - 7,675 on Local Roads & Streets;
  - 849 on State Highways
- **2,733 Highway Bridge Crossings**
- **281 Pedestrian Grade Crossings**
- **76 Pedestrian Bridge Crossings**
- **7,200 miles of track<sup>2</sup>**
- **140,000 miles of highways<sup>3</sup>**



<sup>1</sup> 2<sup>nd</sup> highest total number of railroad crossings in U.S.

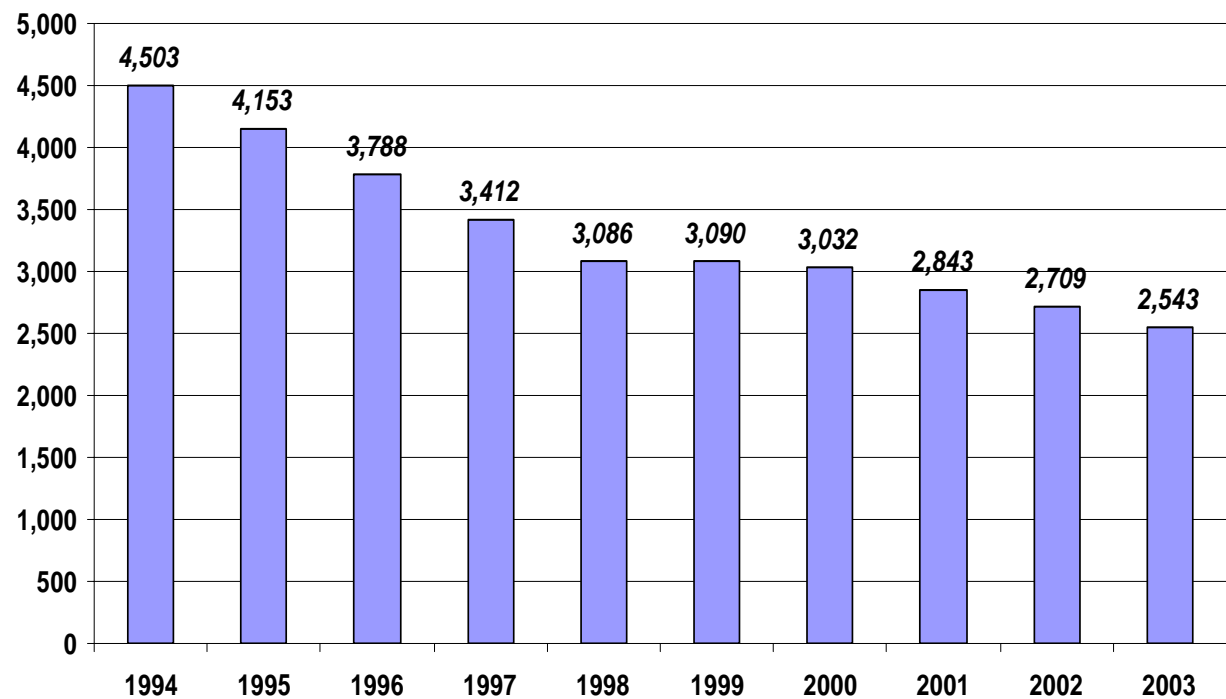
<sup>2</sup> 2<sup>nd</sup> largest rail system in the country

<sup>3</sup> Nation's 3<sup>rd</sup> largest highway system

# Crossing Collisions



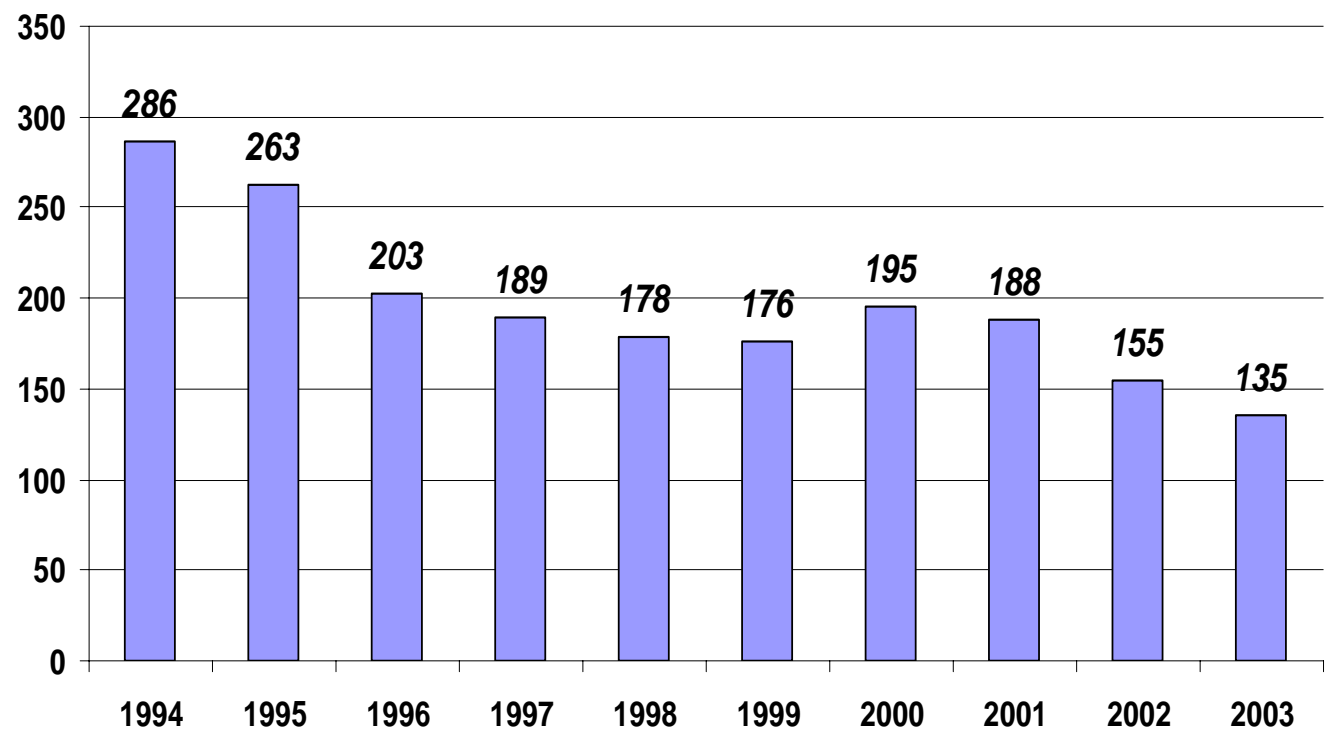
10 Year Trend in Collisions at Public Crossings: USA  
(6% Decline in Collisions 2002 to 2003)



# Crossing Collisions



10 Year Trend in Collisions at Public Crossings: Illinois  
(13% Decline in Collisions 2002 to 2003)





# Grade Crossing Protection Fund

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- Safety Improvements for Public Highway-Rail Crossings on Local Roads & Streets
- Created by the General Assembly in 1955
- Monthly amount transferred from Motor Fuel Tax Fund
- Transfer has grown from \$1.2M/year (1955) to \$27M/yr (1999-current)
- Provided over \$300 million to help pay for safety improvements at 6,000 crossings since 1955



# GCPF Projects

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- Automatic Warning Device Installations
  - Flashers & Gates
- Automatic Warning Device Upgrades
  - Add Gates
  - Upgrade Circuitry
  - Install Wayside Monitoring Devices
- Structures
  - New (Hwy/Rail; Ped/Rail)
  - Reconstruction (Hwy/Rail)
  - Vertical Clearance Improvements (Hwy/Rail)





# GCPF Projects (cont'd.)

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- Interconnects
- Crossing Closures
  - Incentive Payments for Voluntary Closures
  - Connecting Roads
  - Highway Approach Improvements
- New Technology (Video Enforcement, etc.)
- “Emergency” Projects



# GCPF Project Identification

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- Project Application Submittals
  - Local Highway Agencies
  - RRs
- Citizen Complaints
- IDOT Requests
- Staff Investigations





# Project Selection Categories

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- Improvements to grade crossings with high collision histories
- Upgrading grade crossings in rail corridors where passenger trains operate
- Interconnection of highway-rail grade crossing signals with roadway traffic signals at adjacent highway intersections
- Construction or reconstruction of strategic highway-rail bridges



# Project Selection Criteria

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- Previous Crash History
- Existing Warning Devices
- Train and Highway Volumes (No. of Trains/Day; Highway AADT)
- Maximum Train & Highway Speeds
- Number of Tracks
- Number of Highway Traffic Lanes
- Sight Obstructions





# Project Funding Guidelines

- Installation of Automatic Warning Devices: 85/10/5 (85% - GCPF; 10% - Local Agency; 5% - Railroad, plus all future Operating & Maintenance Costs)
- Bridges: 60/40 (GCPF<sup>1</sup> / Local Agency<sup>2</sup>)
- Interconnects: 90/10 (GCPF / RR)
- Upgrade Existing Control Circuitry: 50/50 (GCPF / Railroad)

(<sup>1</sup> Up to max. of \$12M; <sup>2</sup> Other funding sources can be used to reduce the local share.)



# Information

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[www.icc.state.il.us](http://www.icc.state.il.us)

- GCPF Project Applications
  - Grade Crossing Improvements
  - Highway-Rail Bridge Projects
  - Pedestrian-Rail Bridge Projects
- FY 2004-08 5-Year Plan
- File a Crossing Complaint
- Operation Lifesaver Information





# QUESTIONS?

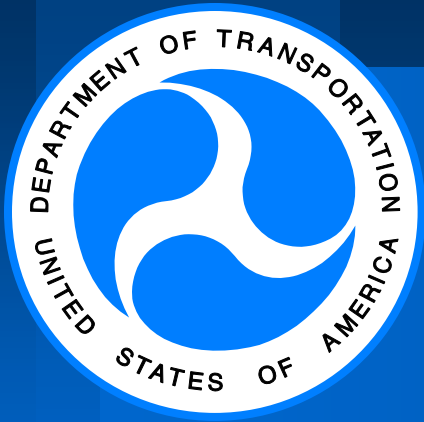
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Contact:

Mike Stead  
Rail Safety Program Administrator  
Illinois Commerce Commission  
527 East Capitol Avenue  
Springfield, IL 62701

(217) 557-1285  
[mstead@icc.state.il.us](mailto:mstead@icc.state.il.us)



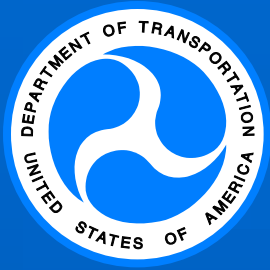


# Highlights of the Locomotive Horn Rule



# Overview

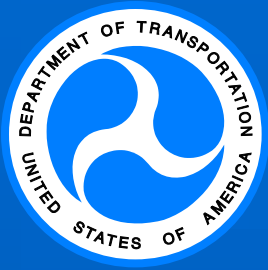
- **Interim Final Rule on Use of Locomotive Horns at Highway-Rail Crossings was published on 12/18/03**
- **Rule describes specific steps communities can take to create quiet zones**



# Overview

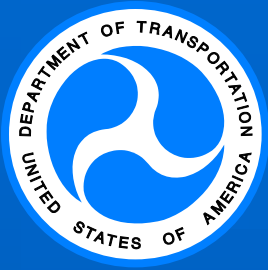
- **Three objectives—**
  - **Ensure a high level of public safety**
  - **Respond to the many communities that have continued to press for relief from unwanted train horn noise**
  - **Take into consideration the interests of localities with *existing* whistle bans**





# Background

- **Most states have laws that require trains to provide an audible warning while approaching public crossings**
- **Some states have permitted whistle bans under state law or home rule**
- **This rule is required by statute in order to provide a National policy for train horn use**



# What the Rule Does

- **Requires trains approaching public crossings to sound horn to provide warning**
- **Provides exceptions to use of horn where risk is minimal**
- **Enables communities to establish quiet zones by reducing the risk caused by lack of horns**



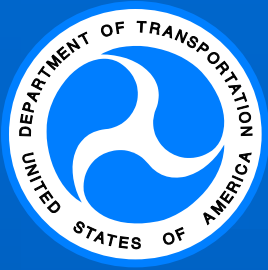
# Horn Use at Crossings

## Use of the train horn:

- Time-based pattern (15-20 secs)
- New maximum volume limit

## Overall effect is a significant reduction in train horn noise in communities:

- Noise reduced for 3.4 million persons
- Noise reduced 38% for 1.4 million most affected

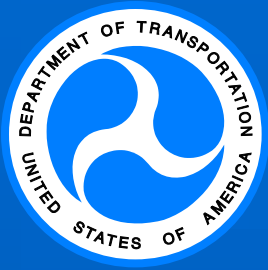


# Creating a Quiet Zone

**Local governments will have two ways of creating a quiet zone:**

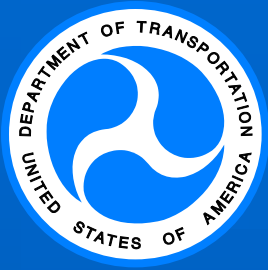
- **Show that the lack of the horn does not pose a significant safety risk (loss of life or serious injury)**
- or**
- **Implement safety measures to reduce excess risk associated with no horn**





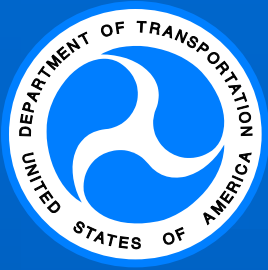
# Quiet Zones: Two Types

- **Pre-Rule Quiet Zones:**
  - Areas without train horns after October 9, 1996 and as rule is issued (December 18, 2003)
  - Existing warning devices may be sufficient as a foundation
- **New Quiet Zones**
  - Quiet Zones that do not qualify as Pre-Rule Quiet Zones
  - Flashing lights and gates required at each crossing



# Risk-Based Exceptions

- All quiet zones must consider risks of not sounding horn
- Risks are quantified through Quiet Zone Risk Index (average risk) calculation
- Some Quiet Zones will qualify without safety improvements



# Risk Calculations

- Quiet Zone risk must be below the average level that would be expected at a gated crossing with the train horn sounding
- This the “NSRT” or National Significant Risk Threshold
- If below “NSRT”, a corridor may qualify as a Quiet Zone without further safety improvements

**Applies to both New and Pre-Rule Quiet Zones**

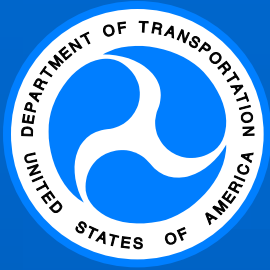




# Pre-Rule Quiet Zones

## Existing “Whistle Bans” can become Quiet Zones if--

- Average risk at the crossings is less than the national average for gated crossings where the train horn sounds (NSRT); or
- The average risk is less than twice the NSRT and no relevant collisions have occurred within the past 5 years; or
- The community undertakes actions to compensate for loss of the train horn as a warning device (SSMs/ASMs).



# Pre-Rule Quiet Zones

**Train horns will not sound in existing whistle ban areas if—**

- **Local authorities state their intention to create Pre-Rule Quiet Zones; and**
- **Do whatever is required within *5 years* of publication (*8 years* if the State agency provides at least some assistance to communities in that State)**



# New Quiet Zones

**New Quiet Zones may be created if--**

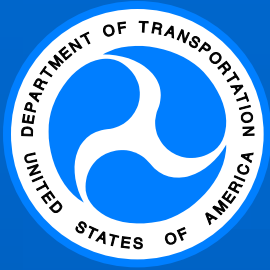
- **Flashing lights and gates are provided at each public crossing; and**
- **Either--**
  - **Average risk at the crossings is less than the national average for gated crossings where the train horn sounds (NSRT); or**
  - **The community undertakes actions to compensate for loss of the train horn as a warning device (SSMs/ASMs)**





## **Supplementary Safety Measures (SSM's)**

- **Crossing Closures**
- **4 Quadrant Gates**
- **One-way Streets with Gates across entire Roadway**
- **Channelization arrangements (traversable and non-traversable) at crossings equipped with standard gates**



# Supplementary Safety Measures:



Four-quadrant gates—  
Entrance gates descend  
followed by exit gates.



# Supplementary Safety Measures:



Channelization  
(traversable curb  
with delineators)

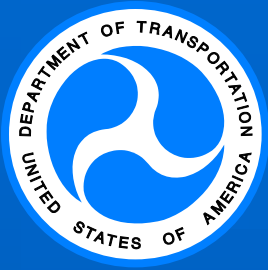




# Alternative Safety Measures (ASM's)

- Non-complying SSM's (e.g. shorter traffic channelization devices)
- Photo enforcement
- Programmatic education and awareness
- Programmatic enforcement

Note: Education and enforcement options must demonstrate a statistically significant improvement in effectiveness, and must be approved by the FRA.



# Wayside Horn

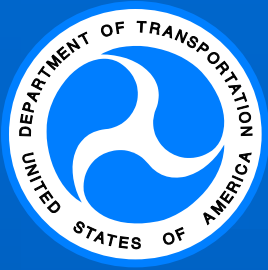
- **Considered as an equivalent to a supplementary safety measure**
- **1 for 1 replacement for train horn**
- **Available only at gated crossings**
- **Regulated by special provisions in an appendix to the rule**



# FRA's Quiet Zone Calculator

## Determination of Risk:

- FRA's QZ Calculator will calculate QZRI and other necessary values
- The QZ Calculator can be used to develop and store multiple scenarios (different combinations of SSMs/ASMs) for each proposed Quiet Zone
- <http://www.fra.dot.gov/Content3.asp?P=1337>



# FRA Assistance

- FRA personnel available to help local governments assess safety measures for their crossings
- FRA personnel can assist with Quiet Zone Calculator and other technical issues





# Interim Final Rule

- Rule becomes effective December 18, 2004
- For additional information:  
<http://www.fra.dot.gov>

## THE “TRAIN HORN” RULE

### Quick Facts

- Fulfills the statutory mandate to require use of the locomotive horn at public highway-rail crossings. By law, the rule may not go into effect until one year after publication (Dec. 18, 2004), at which time state laws governing the same subject matter will be preempted.
- Provides important risk-based exceptions so that many communities can establish or maintain quiet zones without making significant investments.
- Provides flexibility to select “supplementary” and “alternative” safety measures that can compensate for loss of the train horn. Communities may propose adaptations of the engineering solutions along with effectiveness estimates.
- Outside of quiet zones, requires railroad to sound horn 15-20 seconds prior to arrival at the crossing, rather than for 1/4 mile regardless of speed. The rule prescribes both a minimum and **maximum** sound level for the train horn. Overall effect: less noise.

#### **New Quiet Zones may be created if:**

All public crossings are equipped with flashing lights and gates; and either—

- ▶ After adjusting for increased risk created by silencing the train horn, the average risk at the crossings is less than the national average for gated crossings where the train horn sounds (National Significant Risk Threshold or “NSRT”); or
- ▶ Safety improvements are made that reduce the risk to a level either less than the NSRT or a level that compensates for loss of the train horn as a warning device.

#### **Existing “whistle bans” can be converted to quiet zones (Pre-Rule Quiet Zones) if:**

- ▶ The average risk at the crossings is less than NSRT; or
- ▶ The average risk is less than twice the NSRT and no relevant collisions have occurred within the past 5 years; or
- ▶ The community undertakes actions to compensate for lack of the train horn as a warning device (or at least to reduce average risk to below the NSRT).

Train horns will not sound in existing whistle ban areas if authorities state their intention to maintain Pre-Rule Quiet Zones and do whatever is required (see above) within **5 years** of publication (**8 years** if the State agency provides at least some assistance to communities in that State).

- Permits **automated wayside horns** as a substitute for the locomotive horn at crossings equipped with flashing lights and gates upon receiving approval from FHWA.

This Interim Final Rule will be published Dec. 18, 2003; and FRA will take comments through Feb. 17, 2004. More information is available at <http://www.fra.dot.gov>.

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*Disclaimer: This is a short summary of the interim final rule for initial briefing purposes only. Entities subject to the rule should refer to its text as published in the Federal Register on December 18, 2003.*



U.S. Department  
of Transportation

**Federal Railroad  
Administration**

**RECEIVED**  
DEC 23 2003

Illinois Commerce Commission  
RAIL SAFETY SECTION

1120 Vermont Ave., N.W.  
Washington, D.C. 20590

DEC 18 2003

Re: Use of Locomotive Horns at Highway-Rail Grade Crossings

Dear Interested Party:

The Federal Railroad Administration (FRA) has issued an Interim Final Rule for the Use of Locomotive Horns at Highway-Rail Grade Crossings that was published in the Federal Register on December 18, 2003. In connection with the interim final rule, the FRA also completed a Final Environmental Impact Statement (FEIS) addressing potential environmental impacts. Because you, or the agency with which you were affiliated, submitted comments on the Draft Environmental Impact Statement that accompanied the Notice of Proposed Rulemaking for this regulatory proceeding, you have been identified as an interested party.

The FRA is writing to notify you that the FEIS and Interim Final Rule are now available for public review in electronic format on FRA's internet site, <http://www.fra.dot.gov>. A copy of the Executive Summary from the FEIS is enclosed with this letter. A paper copy of the FEIS and the interim final rule can be obtained from FRA upon written request to the following address:

**Office of Safety  
Federal Railroad Administration  
1120 Vermont Avenue, Mail Stop 25  
Washington, DC 20590**

**Attn. Locomotive Horn**

The FRA thanks you for your participation in this proceeding.

Sincerely,

Mark E. Yachmetz  
Associate Administrator  
for Railroad Development

Enclosure

## EXECUTIVE SUMMARY

### ES-1 INTRODUCTION

The railroad transportation system is an essential component of the nation's vital transportation infrastructure. This system incorporates 153,975 public and approximately 98,000 private highway-rail at-grade crossings throughout the country. The Federal Railroad Administration (FRA) is responsible for promoting the safety of America's railroads for both railroad employees and the public and is committed to improving the safety of highway-rail crossings.

Collisions at highway-rail crossings are second only to trespassing as the leading cause of death and serious injury associated with railroad operations. Locomotive horns provide an audible warning of approaching trains with an indication of their speed, direction, and proximity. A number of communities across the Nation have regulated or attempted to regulate the use of locomotive horns in their jurisdictions in order to lessen the noise impacts associated with the sounding of locomotive horns at grade crossings. Following the large-scale imposition of train whistle bans in Florida, FRA became aware that there was a strong relationship between the use of locomotive horns and collision rates at highway-rail crossings. In April 1995, FRA prepared its *Nationwide Study on Train Whistle Bans* (Nationwide Study), to examine the nationwide safety implications of whistle bans. The study, updated in 2000, showed that, absent compensatory safety measures, whistle bans substantially increase the risk of deaths and injuries at highway-rail crossings.

In 1994, Congress passed the Swift Rail Development Act, Public Law 103-440, which, *inter alia*, added Section 20153, *Audible Warnings at Highway-Rail Grade Crossings*, to Title 49 of the United States Code. In 49 USC 20153, Congress directed FRA to issue a rule requiring the use of locomotive horns at all public highway-rail crossings. FRA also was given the authority to make reasonable exceptions to the use of locomotive horns in certain qualified circumstances. As directed by 49 USC 20153, FRA prepared a Notice of Proposed Rulemaking (NPRM) to address the use of locomotive horns at highway-rail grade crossings. In preparing the NPRM, FRA determined that the implementation of the proposed rule constitutes a "major federal action" within the meaning of §102(c) of the National Environmental Policy Act (NEPA, 42 USC 4321 *et seq.*). Accordingly, FRA developed the appropriate environmental documentation required by NEPA and issued a Draft Environmental Impact Statement (DEIS) in December 1999. The DEIS evaluated the potential environmental impacts that could result from the implementation of the proposed rule.

FRA solicited public comments on both the NPRM and DEIS. All comments were reviewed by FRA and considered in preparing the interim final rule and this Final Environmental Impact Statement (FEIS). FRA is issuing an interim final rule to provide an additional opportunity to comment on aspects not previously published in the NPRM. By issuing an interim final rule FRA is providing an additional opportunity for public comment on significant differences between the NPRM and the interim final rule. This FEIS updates



several key elements of the DEIS, including a summary of the interim final rule, the results of additional safety-related studies conducted by FRA, updated analyses of environmental impacts using current grade crossing and census data, expanded mitigation options and flexible implementation requirements, and a summary of public comments on the DEIS with FRA's responses. This FEIS is being issued concurrently with the interim final rule and notifications sent to organizations and individuals that received and/or commented on the DEIS. The FEIS and interim final rule are also available in electronic format on FRA's Internet site, [www.fra.dot.gov](http://www.fra.dot.gov), or upon written request from FRA.

## **ES-2 PURPOSE AND NEED**

FRA is developing the train horn rule to satisfy the statutory requirements of section 20153 of Title 49 of the United States Code in a manner consistent with maximizing railroad safety, making regulations related to railroad safety nationally uniform to the extent practicable (49 U.S.C. 20106), other regulations and Department of Transportation (U.S. DOT) initiatives and programs related to the safety of highway-rail grade crossings, and minimizing the impact of train horn noise where possible without compromising safety.

Locomotive horns are an important element of highway-rail grade crossing safety. The locomotive horn is effective at alerting motorists to the presence of a train, and also provides some indication of train speed, direction, and proximity. If a horn is not sounded at a particular location, the public is deprived of an important source of information as to when a train is approaching, the direction from which the train is coming, and approximately how soon the train will reach the crossing. This can be crucial life-saving information, especially when only passive warnings, such as crossbucks, are present at the crossing.

Some communities, especially those with multiple crossings and high train volumes, have enacted whistle bans affecting crossings within their jurisdictions in the belief that the sounding of locomotive horns at every crossing poses an excessive burden to the quality of life of its residents. Studies have demonstrated that, without the benefit of locomotive horns or other substitute warning devices, there is an increased rate of collision at highway-rail crossings leading to injury and death. Overall, the results of the FRA's Nationwide Study indicate that there is a pervasive safety risk associated with whistle bans.

FRA is faced with the task of providing safety at public grade crossings while minimizing the intrusion of train horn noise into the surrounding community. The rule details when and how locomotive horns must be sounded and when and how a quiet zone, in which horns are not sounded, may be established. The interim final rule also limits the maximum sound level of locomotive horns to provide some relief to the surrounding population while still ensuring that the sound level is high enough to provide the required warning to the motorist.

### ES-3 ALTERNATIVES CONSIDERED

In reviewing the comments on the DEIS and the NPRM, FRA identified five additional alternatives for determining where train horns must sound as well as the Proposed Action and the No-Action alternative. The environmental effects of these alternatives would not be materially different from those of the No-Action alternative or the Proposed Action represented by the interim final rule. The information and analyses presented in this FEIS permit the reader to understand and evaluate the environmental effects of any of the alternatives. Upon examination, FRA concluded that these five additional alternatives are not reasonable options given the agency's purpose and need for the action.

**No-Action Alternative.** The No-Action Alternative would preserve the *status quo*: states and municipalities could try to regulate the sounding of locomotive horns and railroads could continue to resist such regulation through litigation and other means. FRA lacks the authority to implement the No-Action alternative, and adoption of the No-Action alternative would involve congressional action to reverse its mandate to require the use of locomotive horns at highway-rail grade crossings as set forth in 49 USC 20153.

**Proposed Action.** Implementation of the interim final rule would require that horns be sounded at all public at-grade highway-rail crossings in the United States, set a maximum sound level for locomotive horns, prescribe how and when locomotive horns are to be sounded, and provide an opportunity for any community in the nation to establish a quiet zone. These provisions would apply to the use of locomotive horns at all public highway-rail grade crossings, including those currently subject to whistle bans established by local or state authorities.

### ES-4 AFFECTED ENVIRONMENT

Locomotive horns and whistles have been employed as effective grade crossing safety devices for well over 100 years of railroad operations. The loud auditory warning provided by the locomotive horn provides the motorist with information that a train is approaching, its relative speed and from what direction. This information is important at both actively and passively signed crossings. Current regulations require that each lead locomotive be provided with an audible warning device and that the audible warning device produce a minimum sound level of 96 dB(A) at 100 feet forward of the locomotive in its direction of travel, 49 C.F.R. §229.129. The existing regulations do not restrict the maximum sound level of a locomotive horn. In addition, train horn noise has been excepted from Environmental Protection Agency limits on railroad noise emissions. Without a maximum sound level requirement, current railroad practices vary across the country and between different types of railroad operations.

There are approximately 153,975 public grade crossings in the United States that would be subject to provisions of the interim final rule. In addition, all locomotives operating on the general railroad system of the United States would be subject to provisions of the interim final rule. Overall, the crossings over which these locomotives operate and surrounding

areas are considered by FRA to represent the affected environment for the purposes of preparing this FEIS.

## **ES-5 ENVIRONMENTAL CONSEQUENCES**

Potential positive and negative impacts of the proposed rule are identified and discussed in this FEIS with the focus on two principal areas of concern: safety and noise. Provisions that reduce existing horn noise exposure as well as potential direct noise impacts are prominent features of the interim final rule. These provisions would allow affected communities to create new quiet zones or retain existing quiet zones. In addition, the rule contains mitigating provisions for a maximum horn sound level and duration limits that would reduce community noise impacts nationally. These provisions reflect the intent of Congress and meet the requirements for an integral opportunity for mitigation set forth in 49 USC 20153 and would be available to all localities, including those communities that do not currently have whistle bans. The potential for direct impacts to the human environment at approximately 153,975 public at-grade highway-rail crossings are analyzed in this FEIS. At the 2,418 highway-railroad at-grade crossings identified as potentially adversely affected, FRA estimated the potential for noise impacts to the human environment using computer-based noise modeling and geographic analysis techniques.

To the best of FRA's knowledge, the environmental resources potentially affected by undertaking the proposed action have been identified as the human environment with respect to noise exposure and the safety of the transportation network. FRA has studied these issues and the potential for community disruption, impacts on commerce, and impacts on local government. FRA is not aware of any direct or indirect effects of the interim final rule on the following areas: air quality; water quality; solid waste disposal; ecological systems; impacts on wetlands areas; impacts on endangered species or wildlife; flood hazards and floodplain management; coastal zone management; use of energy resources; use of other natural resources, such as water, minerals, or timber; aesthetic and design quality impacts; possible barriers to the elderly and handicapped; land use, existing and planned; other impacts on the socioeconomic environment, including the number and kinds of available jobs, and the need for and availability of relocation housing; public health; human health impacts due to hazardous materials; recreational opportunities; locations of historic, archeological, architectural, or cultural significance; use of Section 4(f)-protected properties.

### **ES-5.1 Safety Effects**

The effect of the locomotive horn rule on public safety was assessed using the results of the FRA's updated Nationwide Study. That study found that the crossings with whistle bans had a significantly higher average collision frequency than the non-ban crossings. The crossings evaluated reflect a very diverse population with respect to physical configurations, motorist warning devices, and highway and rail traffic mixes. Their geographical dispersion contributed to a credible indication of the national safety implication of train whistle bans. FRA refined the analysis procedures by conducting separate analyses for three different categories of warning devices in place at the

crossings (e.g. automatic gates with flashing lights, flashing lights or other active devices without gates, and for passive devices, such as "crossbucks" and other signs). FRA also made a substantial effort to collect information on additional whistle ban locations not previously identified. FRA's updated analyses showed that an average of 66 percent more collisions occurred at whistle ban crossings equipped with gates than at similar crossings across the nation without bans.

Using these figures, the Proposed Action is expected to have a public safety benefit in terms of lives saved as well as injuries and accidents averted. With the resumption of horn sounding, FRA expects at least 123 collisions, 13 fatalities, and 60 injuries to be avoided over twenty years. Since interest in silencing locomotive horns extends to many more communities throughout the nation than those with current whistle bans, much greater safety benefits may accrue as a result of the proposed rule as more crossings are made safer so as to qualify for the establishment of quiet zones.

The No-Action Alternative would continue the 66 percent greater frequency of collisions at whistle ban crossings where they exist today, and would lead to more frequent collisions at every location where a ban is instituted in the future. Additionally, it is possible that in the absence of a mandate to regulate the use of locomotive horns at highway-rail grade crossings, whistle bans could proliferate and result in more collisions and injuries. The No-Action Alternative would not incur the potential impacts of more noise exposure at current whistle ban locations, but neither would it result in the benefits of the proposed rule. On balance, it is likely that a No-Action Alternative would result in more noise exposure over time to communities throughout the nation, and a greater loss of life and injuries.

#### **ES-5.2 Noise Effects**

The effects of the rule related to noise and noise impacts were analyzed using empirical information about locomotive horn sound levels and the computer models described in Chapter 3. The No-Action Alternative would not have any of these potential impacts, but neither would it provide the cumulative benefits of the rule.

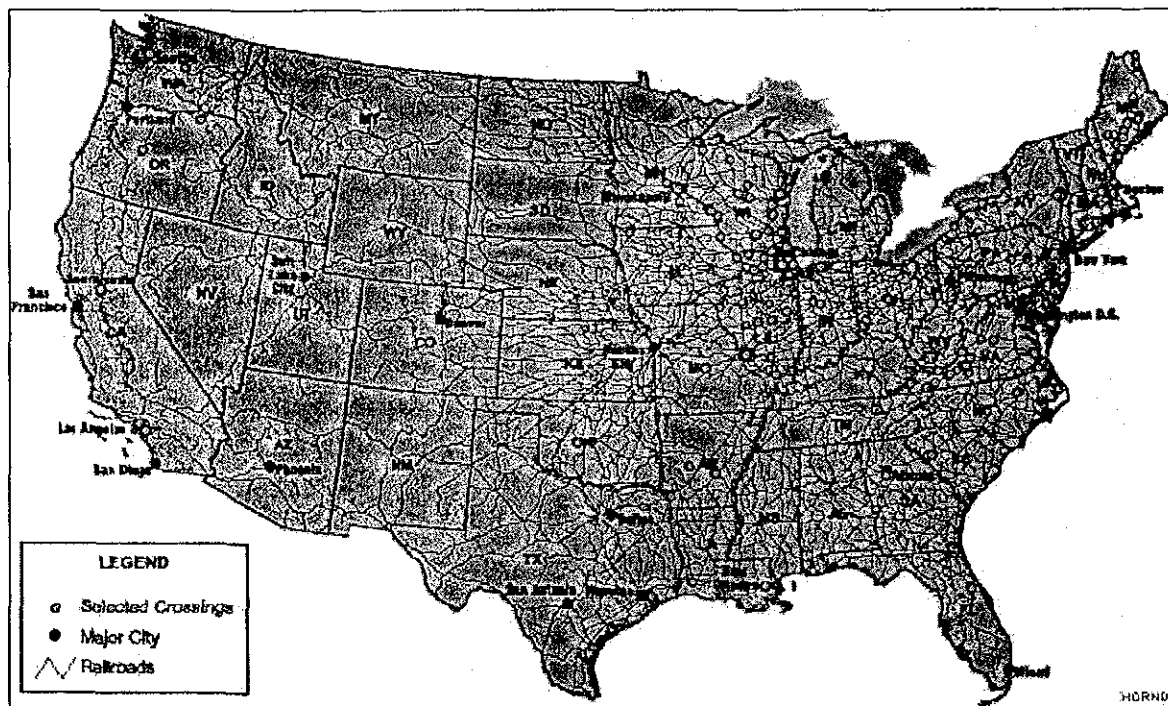
FRA estimated the potential cumulative effects of the rule provisions setting the horn sounding pattern and duration and a maximum horn sound level at the country's 153,975 public highway-rail grade crossings with available location data. The horn noise model was applied to an average crossing using the average population within a 1-mile radius of the crossings. Nationwide (or cumulative) impacts were estimated by calculating the impacts at a typical crossing and applying those estimated impacts to all crossings. The maximum number of persons estimated to be currently impacted by locomotive horn noise is more than 9.3 million. Of this total, 4.6 million may be severely impacted. The rule would reduce this total noise exposure nationwide by setting a maximum horn sounding duration, a maximum horn sound level, and by allowing the establishment of quiet zones. These provisions would apply to all crossings, including current whistle ban crossings, (although they would have little effect where Pre-Rule Quiet Zones are created). These rule provisions would eliminate existing impacts to more than 3.4 million persons, 1.9



million of them with severe impacts resulting in horn noise impact reductions of about 38 percent.

The potential adverse noise impacts of the rule on populations adjacent to whistleban crossings were analyzed although FRA expects most whistlebans to convert to Pre-Rule Quiet Zones. Using empirical information about locomotive horn sound, current population statistics, and computer models, potential noise impacts were modeled to estimate the maximum number of people potentially affected in the vicinity of the 2,027 crossings with current whistle bans shown in Figure ES-1. These impact estimates assume the typical ¼-mile sounding distance commonly found on the nation's railroads. Because FRA estimates that approximately 66% of whistleban crossings may be eligible for conversion to Pre-Rule Quiet Zones without any initial improvements, the potential for adverse noise impacts is less than the noise analysis indicates and could be less than 44% of the numbers reported in chapter 4 of this FEIS. FRA also estimates that only 1% of current whistleban crossings are likely to be discontinued and that most needed improvements will be made so that whistlebans can be converted into Quiet Zones. Additionally, any persons impacted or severely impacted would also share in the benefits of the maximum horn sound level and horn sounding duration provisions of the rule.

**FIGURE ES-1**  
**WHISTLE BAN CROSSING LOCATIONS EVALUATED**



### **ES-5.3 Quiet Zones**

The interim final rule provides several options for establishing quiet zones in order to give communities more flexibility as to how and where they implement the safety improvements prescribed by 49 USC 20153. In response to comments received at public hearings and throughout the scoping process, FRA included in the interim final rule a performance-based approach that credits successful safety strategies and allows communities to choose the most appropriate means of reducing risk at highway-rail grade crossings.

The interim final rule contains provisions allowing communities to create new quiet zones or retain existing quiet conditions, which mitigate potential direct noise impacts. In addition, the rule contains provisions for a maximum horn sound level that would reduce community noise impacts nationally. These provisions reflect the intent of Congress and meet the requirements for an integral opportunity for mitigation set forth in the 49 USC 20153. FRA views the provisions for quiet zones as an ample and unlimited measure to address direct impacts that would be available to all localities, including those communities that do not currently have whistle bans. FRA is also confident that many communities will seek to formally adopt quiet zones to further mitigate locomotive horn noise impacts. FRA estimates that over half of the current whistle ban crossings would not require any improvements for inclusion in pre-rule quiet zones that would maintain the existing prohibition on the sounding of locomotive horns. Approximately 44 percent of current whistleban crossings would require some sort of warning gates, supplementary safety measures or alternative safety measures to be included in a quiet zone status.

After consideration of the mitigation opportunities offered by the quiet zone provisions, FRA is confident that the adoption of quiet zones by local jurisdictions would be widespread. In principle, quiet zones could be adopted by all localities that currently have whistle bans where significant numbers of residents would otherwise be impacted. In addition to communities with current whistle bans, there are many more localities in the country that may opt to implement quiet zones. The effect of these new quiet zones, coupled with the quiet zones that are formed within jurisdictions with current whistle bans, would very likely be enough to fully compensate for any direct noise impacts of the rule where whistle bans now exist.

### **ES-5.4 Other Considerations**

**Environmental Justice.** FRA assessed potential impacts to environmental justice populations using the methodology and thresholds described in Chapter 3. Implementation of the interim final rule could result in potential environmental justice impacts to minority or Hispanic populations in 22 counties located in 11 states. States with the greatest potential impacts to environmental justice populations are California and Virginia. None of the affected crossings are located in areas where the average household income is below the Federal poverty level, though there are residents within most of the crossing areas that would be considered low-income. In total, impacts to environmental justice populations represent about 4 percent of the total impacts estimated by FRA.

While FRA's analysis shows that there could be some impacts to environmental justice populations at grade crossing locations in several states and counties, these estimated impacts do not account for the reduction in impacts associated with the mitigating provisions of the rule. The required limits on maximum horn levels and sounding duration would reduce these impacts substantially, and further reductions are possible by establishing new quiet zones. Minority, Hispanic or low-income communities would have equal opportunity to designate a quiet zone under the rule, and the rule includes an extended implementation option (up to 8 years) intended to elicit state-level aid for these communities.

**Health and Human Welfare Impacts.** Sound exposure from locomotive horns in communities abutting railroad lines does not reach the cumulative levels that would exceed risk criteria for hearing damage. The horn noise model established by measurements for the Federal Railroad Administration is based on a sound exposure level of 107 dBA at 100 feet from the tracks for locations not closer than 1/8 mile from a grade crossing. In order to risk the onset of hearing damage, a person at that distance would have to hear more than 180 horn events during each 8-hour period for five days a week and continuously for 40 years. These conditions would yield an 8-hour  $L_{eq}$  of 85 dBA. In fact, the risk of hearing damage may be even less because the sound is not actually continuous and the ear has time to recover between horn soundings.

Other noise effects on health have been researched with ambiguous results. Stress related syndromes, especially relevant to mental health, are the result of a complex interaction of many factors. Noise exposure can be a contributor when an emotional factor, such as an attitude toward the source of noise, comes into play. Several airport noise surveys have indicated stress-related disorders result from continuous exposure to high noise levels, but it has not been conclusively shown that the actual physical stimulus of noise is the cause of the health effect.

**Economic Impacts.** Implementation of this rule would reduce the risk of collisions at grade crossings by requiring the sounding of the locomotive horn at grade crossings unless it has been specifically determined that the crossings in question have a risk profile that justifies silencing the horn. FRA believes communities would take advantage of the many options available to compensate, in terms of risk, for the silencing of the horn. FRA is confident that the benefits in terms of lives saved and injuries prevented will exceed the costs imposed on society by this rule. FRA estimated costs and benefits for approximately 2,000 existing whistleban crossings and about 450 potential New Quiet Zone crossings. FRA estimates the rule would have net benefits of approximately \$36 million.

## ES-6 PUBLIC PARTICIPATION

Throughout the rulemaking and environmental review process, public input and participation was important to FRA. Many opportunities were provided to organizations, government officials, and individuals to submit comments and express their concerns.

The DEIS and the NPRM were issued concurrently by FRA. These documents were distributed to all persons or organizations that expressed interest in the rulemaking process, as well as to each member of the United States Congress. FRA encouraged interested parties to comment on either the DEIS, the NPRM, or both. Public hearings on the DEIS and the proposed rulemaking were held across the nation in areas with whistle bans and known concerns about locomotive horn noise, including Washington, DC; Salem, Massachusetts; Chicago, Illinois; Western Springs, Illinois; Des Plaines, Illinois; South Bend, Indiana; Berea, Ohio; Madison, Wisconsin; Ft. Lauderdale, Florida; Costa Mesa, California; and Pendleton, Oregon. The hearings provided interested parties an opportunity to make oral presentations or offer comments. For the purposes of this FEIS, FRA treated comments submitted to the DEIS docket and those made at public hearings as comments on the DEIS. All comments received by FRA were considered equally regardless of the form, (verbal, letter, or e-mail) in which they were delivered to FRA.

Approximately 950 individuals and organizations commented on the DEIS, making almost 1,900 written and approximately 1,000 oral comments. FRA reviewed these comments in developing the interim final rule and revising the analyses included in this FEIS.

*Note Paper*

